THE
# AMERICAN FARMER,
SPIRIT OF THE AGRICULTURAL JOURNALS OF THE DAY.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . *Virg.*

**Vol. II.** **BALTIMORE, MARCH, 1847.** **No. 9.**

## WORK FOR MARCH.

The Spring is upon us. With it, comes its toils and its responsibilities—and, in *anticipation*, its pleasures, its delights, and its pastimes; but whether these latter should be realized or not, certain it is, that the former must be met and overcome in the true spirit of stout resolution and determined will, unconquerable energy and untiring industry, or they will prove in the sequel to have been incurred without profit. The mind must be made to labor as well as the hands. Plans must be adopted, at least a week in advance, and these cannot be, unless the *mind* shall be made to think well and judiciously in their concoction—but when these *plans* shall have been *adopted*, the time which may have been devoted to their perfection will prove to have been wasted, unless they are carried out with persevering vigilance and scrupulous exactness. This can only be effectively done, where the proprietor gives a personal supervision over every operation on his farm—and he may take our word for it, that a pair of well-directed eyes thus occupied, can effect more than four pair of hands. We advance this opinion from personal experience, and therefore speak advisedly when we say, that *attention* to business on the part of the master, secures attention on the part of the hands.

In setting all the spring crops, liberality must be observed in the dispensation of manure.

With this brief introduction, we will pass to such matters as should be promptly attended to

### On the Farm.

*Sowing of Cloverseed.*—As we are among those who believe, that no land can be *preserved* in a condition of fertility, without the system of culture observed embraces clover within its economy, as well for turning in, as for food for stock, we advise all who may have wheat fields, (if they have not done so already) to sow thereon, upon every acre, from 12 to 16 lbs. of good clean Clover seed.

*Sowing Grass Seeds.*—So soon as the frost is out of the earth, and the ground sufficiently dry to be ploughed without injury, all kinds of grass seeds may be sown—as *Timothy, Herd's-grass, Orchard-grass, Rye grass and Lucerne.* A practice prevails in some parts of our country of sowing *Timothy* and *Clover-seed* together. The practice we think a bad one,—Clover flowers, and is fit to cut, several weeks before Timothy, and is therefore ill suited to be grown with it on the same field. We would always sow Timothy seed alone. With regard to the quantity of seed we would remark, that less than a *peck* per acre should never be sown, and that a *peck and a half* per acre, could very advantageously be used on that space of ground.

*Clover* and *Orchard-grass*, though they do not flower at the same time, may be sown together, with a decided improvement both for pasture and hay. When they are sown together, the clover must direct the judgment as to the *proper time of cutting for hay.* So soon as the clover is in bloom, without looking to the state of the orchard grass, is the time to cut. When thus sown together, 12 lbs. of Clover-seed and 1 bushel of Orchard-grass should be sown on each acre. Pastures thus sown are much better than when Clover is alone sown thereon, as the cattle are measurably exempt from contracting the disease called the *hoven.* The quantity of hay which may be grown on an acre is greater, while the quality is better.

*Lucerne.*—Those who may desire to have a lot of grass to cut to be fed green to their stock—and all should do so—should not omit to prepare an acre or two, and sow thereon *Lucerne*, at the rate of 20 lbs. per acre. The best way is in drills a foot apart, though if the ground be properly prepared, it will do well sown broadcast. To succeed in the latter method, the ground should be ploughed at least twice. After ploughing the first time, it should be harrowed and rolled; suffered to remain until the weeds spring up and have attained a few inches in height, when the ground should be manured liberally, ploughed deeply, and thoroughly pulverized, by repeated harrowings. Then soak the seed in warm

water for 12 hours, drain off the water, dry the seed in ashes, and sow it,—after which it must be lightly harrowed in and the ground rolled. If the ground has not been previously limed, a few bushels of lime, say from 5 to 10 bushels per acre, together with an equal number of bushels of ashes should be sown thereon. Lucerne may be cut from 3 to 4 times in a season; it is a prolific and highly nutricious grass, greatly tends to increase the secretion of milk in cows, and is relished well by horses, as well as cattle. In Europe it forms on many estates, the only food of the working stock. The soil which it most delights in is a deep fertile mould, which is all the better of having lime and potash in its composition. Were we about to prepare a lot for the reception of the seed, we should use oyster-shell lime instead of that made from stone, and from the simple reason, that the former contains the *phosphate* of lime, which the latter does not, a substance essential to the healthful growth of all grasses, and especially so as regards Lucerne.

A very good compound of grass-seed for *hay* or pasture may be formed of *Cloverseed*, *Orchard-grass seed*, and *Perennial Rye Grass seed*. When sown together 12 lbs. of the former and 1 bushel of each of the latter should be sown per acre.

*Formation of Pastures.*—If any one should wish to form a *permanent pasture*, where the stock may, at all times, find rich verdure and a generous bite of grass, the following mixture of grass-seed would probably be the very best that could be desired. We will premise, however, that before sowing, the field should be thoroughly and generously manured and limed. Then sow on each acre 12 lbs. of *Cloverseed*, ½ bushel of *Herd's grass seed*, ½ bushel of *Kentucky blue grass seed* and 1 bushel of *Orchard grass seed*, harrow it in *lightly*, and roll the ground. We will only add, that the ground should be thoroughly and deeply ploughed and made fine with the harrow and roller before the sowing of the seeds. Such a pasture would last for an age, if harrowed every alternate year, and occasionally supplied with lime, ashes and plaster, say every fourth year; every application to be immediately followed by the harrow. To those who have permitted their stock to enjoy the precarious *luxuries* of road-sides and the woods, the preparation of pastures may appear as involving unnecessary labor and expense; but they may rest assured, that they could not appropriate labor and money to any object which would more conduce to their interest, while they would have the satisfaction of seeing their stock in such condition as to bring money into their pockets, and reflect credit upon their reputations as provident agriculturists, and exemplars to their neighbors.

*Herdsgrass*, at the rate of a bushel of seed to the acre, may be sown now, or any time during the spring, though we are free to confess, that we have not much conceit of it as a *hay* grass, not because it does not make good palatable hay, for it does, but because it does not make enough of it to the acre. As *hay* for sheep, it is good, and in that connection it might be advisable for sheep husbandmen to have a sufficient number of acres in it to furnish hay, so as to afford them an opportunity to alternate their long food, a change of diet with four-footed as well as with two-footed animals being promotive of health.

*Clover-fields.*—All clover-fields which may not have been so treated already, should have, *as soon as possible*, a bushel of plaster sown on each acre. Such work is best performed in a moist, cloudy day.

*Hauling out Manure.*—We feel that we need hardly remind the careful husbandman, that he should lose no time in getting his manure in place on the fields where it may be needed for his corn and other spring crops; but we must be excused for saying, that no farmer should omit improving every opportunity of adding to his manure piles and of preserving them from the injurious effects of sun and rain, when formed. It is an easy matter to give them a covering of a few inches of earth, which will be sufficient to keep in the enriching gases, which would otherwise be lost, while earth thus spread over the piles, will become so impregnated with the fertilizing principles of the masses as to be converted into excellent manure. And while we are on this branch of our monthly talk, we would be permitted to enjoin it as an imperative duty upon our brethren, to make extra efforts to secure ample supplies of manure for their corn grounds. Corn as they are aware now commands good prices, ranging in the neighborhood of a dollar a bushel, with every prospect of its continuing for some time, if not years, to come. In Europe, with the exception of Russia, the grain crops signally failed last year. In England, Ireland, and Scotland, superadded to the failure of the grain crops was that of the Potato, a crop so far as the masses of the population of those countries are concerned, of more moment than that of wheat, or Barley, or Oats, as it is the food upon which the laborers have, hitherto, chiefly subsisted. It is not within our power to state what the deficiency of the grain crops of England amounted to in 1846, but it must have been immense, if we are to judge by the dreadful accounts of starvation, which each steamer brings of the people of Ireland, and the unexampled efforts making not only by the people, but by the government of England, to import from abroad. So urgent is the necessity, and so disproportioned the means within the command of private enterprise, that facilities of importing bread-stuffs and provisions through the medium of the commercial marine, that it is in contemplation to employ a portion of the naval marine for that purpose. This extraordinary application of both individual and governmental enterprise to the same object, proves conclusively that the end of 1847 will show a deficiency in the means of subsistence far beyond anything at which it had arrived in former years. Such being the present and prospective state of things in England, we venture

nothing in saying, that we shall find a market there, for a very large portion of *our* surplus agricultural products not only during this, but through several *succeeding* years, as she has entered upon this year without a surplus on hand, and cannot fail, from the very nature of the circumstances in which she is placed, so to enter upon the year 1848. Hence the demand for our corn and wheat will be continued. For *Corn*, we believe our market there will be continued long, very long, after *famine*, the cause that has brought it into notice, will have ceased, as necessity, will have established its well deserved reputation, as a most pleasant and highly nutritious article of food—an article capable of being rendered palatable, in so many forms, to tempt the human appetite to indulgence—an article so full of all the flesh and fat forming principles, as to give it a passport to popularity in the stables of the opulent country gentlemen and titled feeders of cattle, as well as with the more humble class of stall-feeders.

With such prospects luring them to industry, exertion and enterprise, we trust that the corn-growers of our land will put forth their every energy to accumulate full supplies of manure, in order that their labor bestowed upon their corn crops may not be in vain. *Corn*, like all other plants of rapid growth, requires to be fed profusely. With such feeding and good culture, it is competent to produce a greater amount of grain, twice told, than almost any other of the cereal family—but if poorly fed and indifferently tended, on an ungenerous soil, there is no crop more wretchedly miserly in its yield—none so well calculated to wear out human patience, or bring the cultivator sooner to ruin.

*Oats.*—Let the cultivators of this grain bear in mind that the sooner he sows his seed, after the frost is out of the ground, the heavier will be his oats, and the larger their yield. It is a crop which has frequently yielded from 60 to 100 bushels, and ought, under good management, good soil, and good season, to yield on an average 50 bushels to the acre, and yet we hazard nothing in saying that the average does not reach 20 bushels per acre. Generally speaking, the worst field on the farm is selected for the oat crop—the field is indifferently ploughed and pulverized, and the rest left to chance, whereas, oats requires nutriment, lime and potash in goodly proportions. Where a field is poor, and no other means of enriching it at hand, a bushel of plaster and 5 bushels of ashes, per acre, should be applied—at all events a bushel of plaster should be sown on each acre; this would prove both bread and meat,—for while the lime in the plaster would furnish the first, the sulphuric acid, its other chief element, would abstract the latter from the air, from the dews and from the rain, in the form of ammonia, and thus, in part, make amends for the deficiency in the soil.

The *quantity of seed* to be sown, per acre, should not be less than two bushels, and we think that three might be sown with advantage.

*Barley.*—If there be any who desire to engage in the culture of Barley, we would remark, that the sooner it is got in the better. The soil best adapted to its culture is a rich, deep loam. The ground should be well prepared, and as the grain has a hard dry husk, it would be well to soak the seed in a solution of horse dung for 12 hours before it is sown. There are instances on record, where, from such treatment of the seed, the product has exceeded that from unsoaked seed 200 per cent. The yield of Barley ranges from 20 to 60 bushels per acre according to the fertility and adaptation of the soil and the favorableness of the season, and we think that from 25 to 40 bushels might be calculated on, upon lands moderately fertile. From 2 to 2½ bushels of seed per acre, should be sown. Barley when hulled makes a bread whiter and nearly as good as that prepared from wheat. It is much used in soups, and in the preparation of Barley-water for the sick, but more, infinitely more in the brewing of malt liquor. Its straw is well relished by cattle, while the grain always commands a fair price and ready sale. It is a crop much more certain than Rye, its yield is greater, it makes an excellent chop-food for horses and cattle,—and would bear an increase of 100 per cent. in product.

*Meadows.*—Where these may be turf-bound, an improvement in product may be effected by harrowing the ground as soon as the frost is out of it, and sowing thereon a mixture composed of 5 bushels of ashes and 1 of plaster to each acre. If the stand of grass should be thin, it would be well to sow four or five pounds of Timothy seed per acre and harrow it in. Meadows may be restored to productiveness by such management, without incurring the labor and expense of re-ploughing.

*Grain Fields* —It is considered a good practice to harrow and roll grain fields as soon as the ground is sufficiently hard to bear these operations without poaching. In England, the best results have followed such practice.

*In-Calf Milch Cows.*—As these useful animals will now be bringing forth their young, it will be necessary to increase their provender. In addition to their hay, fodder or straw, as the time draws nigh for calving, they should receive slops made of some kind of meal, bran, or roots. By such attention, the cows will be enabled to sustain their approaching new relations, in strength and vigor, and come to the pail in freshness.

*Breeding Ewes.*—As this is a trying month with these, they should be allowed, each, a gill of meal a day in addition to their long feed, and should be regularly salted.

*Root Crops.*—As potatoes have become a precarious crop, it would be well for farmers to turn their attention to the growth of Beets, Mangel Wurzel, Carrots and Parsnips, as a substitute for that root. The cultivation of these latter roots cost but very little more than potatoes, and if properly managed will yield much more to the acre. It is too soon as yet to put in either of these roots, but not too soon to begin to make preparation for them, and hence these timeous hints. The ground intended for their culture would be the better of being now ploughed, harrowed, and left until the proper time for drilling the seed arrives; when well rotted manure should be spread thereon and ploughed in, the ground to be thoroughly harrowed and rolled preparatory to marking off the drills. We revert to these matters now, in order that measures may be adopted to secure a supply of manure. The soil to be selected for each of these roots should be a deep rich loam.

*Early Potatoes.*—About the middle of this month will be a good time to get in early Potatoes. In addition to the usual manure, a mixture of 1 part plaster, 1 of salt, 1 part flour sulphur, 2 of ashes and 3 of lime, should be sown over the manure after it is in the drills, which mixture should be again applied after the potatoes come up and are an inch or two

high. Just enough should be sown over the vines to whiten them. We do not say that if you apply this mixture that your potatoes will escape the rot, but we will say, that we believe it to be as good a preventive as can well be devised. Dry the potato sets as cut in plaster.

*Ashes and Plaster.*—Provide yourself with as much ashes and plaster against corn planting time, as will allow you to put 5 bushels of the former and 1 of the latter to each acre of your corn to be applied in the hill, or upon it.

*Orchards.*—These should be pruned of all dead or superfluous limbs. Cut into the sound wood and make a smooth surface—cover the wound with a composition made of 1 part lime, 1 part fresh cow dung, made into the consistence of mortar—or made thus, 1 part rosin, 1 part beeswax, and 2 parts pitch, to be melted well together; spread this warm on a piece of muslin, or coarse paper, and apply it to the wound.

Young fruit trees may now be transplanted—the sooner the better. In planting out a young orchard, every care should be taken. The hole should be dug wide enough to allow the roots to be spread out, and much deeper than needed—the hole must be filled up to the proper depth with a mixture of equal parts of forest mould and the soil taken out—then put in your tree, have it held straight, fill up with a mixture of forest mould and surface soil, which must be trodden around the tree as the filling up is going on. The young tree being planted, a stake must be driven down, and it tied to it with a whisp of straw. Then pour water on the newly filled in earth to make it settle; and fill up even with the surface. To maintain moisture in the earth, it will be well to place some long manure around the tree; but should the weather be very dry, the newly planted trees must be watered at least twice a week until they take root and begin to grow. It would also be well to sow a mixture of equal portions of lime and ashes for several feet around each tree. In planting out a young orchard, be sure to get the best kinds of fruit, and to buy from a responsible, conscientious nurseryman.

*Ornamental Trees.*—If you have not shade trees around and in front of your homestead, delay no longer, but plant them this month. A country house without such sources of comfort, however stately in its exterior, and convenient in its interior arrangements, bears the aspect of desolation. The absence of shade not only detracts from the value of an estate, but subjects the inmates of the dwelling to much discomfort, and reflects discredit upon the taste of the proprietor.

*Subsoil Ploughing.*—This mode of preparing ground is daily gaining favor with intelligent husbandmen, and we revert to it now, to incite some of our enterprising readers to give it a fair test. By selecting 2 acres of equal quality in a corn field, subsoiling one acre and leaving the other unsubsoiled, an experiment may be made by which the utility of the process may be ascertained. Should such experiments be made, we shall be thankful to receive accounts of their results.

*Fences.*—Examine your fences, and give them a thorough repairing—and have the entrance to each of your fields supplied with a good set of bars, or gate.

*Out-houses.*—Have these well cleansed and whitewashed.

We have thus endeavored to notice those things which claim attention, and must leave it to you to suppyl whatever we may have omitted, and will crave permission to conclude our chat, by an invocation to Providence to smile upon your labors, to vouchsafe fruitfulness to your fields, good prices for your products, and health and happiness to all that dwell beneath your roof.

## THE CHEMICAL PRINCIPLES OF THE ROTATION OF CROPS.

*Pronounced before the American Agricultural Association, March 4th, 1846, by* D P. GARDNER, M. D., *Honorary Consulting Chemist of the Association, Member of the Lyceum of Natural History, etc. formerly Prof. of Chemistry and Natural Philosophy in Hampden Sidney College, Va.*

(Concluded from our last No.)

### *VI. Plants Exercise a Natural Affinity for Saline Matters.*

It has been already shown that the seeds of cultivated plants cannot be matured without phosphoric acid, and we find upon examination that this is not the only instance in which a distinct partiality is evinced by vegetables for certain mineral bodies. Chemical analyses and the observations of naturalists assure us of this fact. It is notorious that the plants of salt marshes are distinct from those which are found near fresh waters. In Switzerland, the appearance of certain species of clover is known to indicate marl. The plants indigenous to clays, sands or calcareous soils are distinct, and if they be not instantly recognized it arises from the fact that most lands contain an admixture of all the mineral substances essential to fertility. From the analyses of chemists, now extended to several hundred, we find that there is also evidence of the affinity of plants for certain bases; thus it is sufficiently clear that Composite, Umbelliferous, Amentaceous, Gramineous and Chenopodiaceous plants prefer potash; Leguminious, Rosaceous, Solanaceous and Rubaceous plants affect lime; the families of Cruciferæ, Asphodeleæ and Liliaceæ select soda. Every person knows that oaks, maples and walnuts yield more potashes than pines. The study of this subject is not, however, completed; there are many points to be considered which tend to involve the inquiry in difficulty. It may be said that DAVY was the first who drew attention to this topic, in a chemical point of view, in the cases of gypsum and clover, oats and silica. Little had been done to this time until LIEBIG resuscitating the views of DUNDONALD and DAVY showed the affinity of several plants for certain bases. He enumerates grass, oats, wheat, barley, tobacco, peas, potatoes, clover, corn, turnips and the Jerusalem artichoke. This kind of classification has occupied much of my attention for several years, and has been dwelt upon in my lectures in the University, and for the reasons I have already advanced I beg to extend the number of plants to the families above enumerated, in which several are also placed in a situation different from that of LIEBIG; the subject is, however, far from decided and probably the exceptions to grouping in families may be greater than the advantages gained. Whatever grouping may be expedient, it is not to be forgotten that several circumstances are to be considered in making use of any analysis for the purpose of determining the place of a plant: these are—

1. That there exists an unquestionable isomorphism amongst many of the mineral bodies: thus—potash, soda, oxide of ammonium and hydrate of lime—lime and magnesia—sesqui-oxide of iron, sesqui-oxide of manganese and alumina—sulphuric and selenic acids—phosphoric and arsenic acids—are res-

pectively isomorphous groups. Hence soda may replace potash; hydrate of lime may be present in place of either soda or potash. That this displacement or substitution does occur in nature is abundantly proved. Thus soda has been found to replace the potash of the oak in Long Island, on the sea coast. Marine plants, as the salsosas, transplanted to an inland situation are found to contain potash. Tobaccos from various sources, analyzed by BERTHIER, yielded potash as a base, whilst specimens examined by FRESENIUS and WILL yielded sixty per cent. of lime and magnesia salts.

2. The different parts of the same plant yield an excess of dissimilar salts: the potatoe tuber contains eighty-six per cent. of potash salts—the tops sixty-one per cent. of lime salts. In the same way, the roots, foliage and seeds of other plants give indications of an affinity for different minerals.

Hence it follows that analysis will differ with the nature of the soil on which the plant has been produced, and with the part examined, or if every portion be examined with the part used in excess. As it is usual to publish the mere analysis without designating the soil, or variety of the plant, it is necessary in arriving at trustworthy conclusions to look somewhat further than this. Therefore, in reaching my position, I have kept in view two points—the natural habitat of the plant and the circumstances under which its produce becomes of great excellence. Thus in the analysis of the onion by FOURCROY and VAUQUELIN, lime salts predominate; CADET found sixty-four per cent. of potash salts in the garlic; but I venture to place the family to which the onion belongs (*Asphodelæ*) amongst the soda plants, because it is well known that asparagus, many kinds of onion and other genera are indigenious to the sea coast and salt marshes, and because the Spanish onion which excels all others is cultivated in lands irrigated by salt water. Cruciferous plants are soda plants characterized by a remarkable affinity for sulphur, yet in the analyses of the ashes of turnips and cabbages they appear to be potash plants, that base acting as a substitute; I arrive at the conclusion that they prefer soda, from the fact that cabbages and many other cruciferous plants delight in situations near the sea shore. A gentleman well known to this Association has recently shown that the grapes cultivated near the low salt plains of New-Jersey contain soda instead of potash salts, and are in consequence of a very inferior flavor. Another interesting case of the influence of the bases on the flavor of plants exists in the case of tobacco. The French government agents, finding that the tobaccos from the United States had become decidedly inferior to the old samples, submitted specimens to the examination of M. PELOUZE, who ascertained that lime salts predominated in the inferior specimens in the place of the potash salts obtained by BERTHIER.

In determining the place of a plant in the saline groups, I have for the most part selected the ashes of leaves as the true guide, because, in the first place, the leaf is the important organ of vegetation in which the sap is elaborated and the future growth of the plant provided for; and secondly, because there is reason to suspect that some part of the saline matter of the roots may be, like that of the bark of trees, a refuse portion. It is true, that in the case of potatoes, the leaves are not removed and the saline matters of the tubers only are taken from the ground, and therefore economically considered this saline matter should be estimated, but the marked effects of lime in the culture of potatoes, on the tubers as well as the leaves, makes it evident that this base is the one that is essential, and that, although potash salts are given in the analysis of SPRENGEL, it appears to arise more from the mixed nature of the soil than the predilection of the plant, and the lime salts would be found in the tubers as well as in the leaves, on calcareous soils. If the view of RASPAIL be correct, that the presence of saline matters in tissues is the essential of their organization and the true source of their distinction from the mere proximate principles of which they are composed, it is a necessary consequence that the organizing portion of the plant—the leaf—should contain the essential saline matters, without which, or other isomorphous substitutes, it could not be developed nor carry on its functions; and if the leaf does not flourish the plant cannot attain perfection. In this view of the case, it is proper to determine the situation of plants in the saline groups according to the analysis of the leaf, if they be cultivated for foliage or roots only, unless the amount of mineral matter removed by the roots be very much the greatest.

The influence of cultivation is not to be overlooked in grouping plants. Under natural circumstances all the grain-bearing plants require little azotized matter, but from the development which many, such as wheat and barley, have acquired, they have become azotized plants, and are not to be maintained in their present state without a large supply of this food made to the roots. Many garden vegetables are also of this kind; the cabbage in nature consists of a few tough leaves and inhabits soils of ordinary fertility on the sea side; its present luxurious development, by which it attains a weight certainly a hundred times greater in several varieties, is the result of supplying food to the root in tillage, and if the supply be diminished the characters of the variety are soon lost and the vegetable degenerates.

The following table will show the position of most cultivated plants, so far as evidence exists at present. The conditions under which the classification has been made should be borne in mind.

| | | | |
|---|---|---|---|
| Plants requiring much azote in the soil, | Seed bearing | Lime, | Hemp seed, Cotton, Hop, cultivated Peas. |
| | | Potash, | Corn, Madia, Wheat, Rice, Oats, Barley. |
| | | Soda with Sulphur, | Rape seed, Colza, Mustard seed, Linseed. |
| | Foliage or root crops, | Lime, | Tobacco, Potatoes, Hemp, Indigo, Madder. |
| | | Potash, | Sugar cane, Carrots, Parsnips, Mangel-wurzel, Beets, Spinach. |
| | | Soda with Sulphur, | Turnips, Kohlrabi, Ruta baga, Cabbages, Onions, Asparagus. |

| | | | |
|---|---|---|---|
| Plants requiring little or no azote in the soil. | Seed bearing | Lime, | Field Beans, Pindars, Vetches. |
| | | Potash, | Rye, German and Polish Millet, Buckwheat. |
| | Foliage or root crops, | Lime, | Pomaceous fruits, Lupius for fallowing Clovers, Spurry, Lucern, Sainfoin; all cut before seed. |
| | | Potash, | Meadow Grasses, Jerusalem Artichoke. |

Thus the table presents ten groups of plants to be employed in a rotation, which are variously exhausting of saline matters and exhausting or ameliorating as respects azote.

*VII. On the Chemical Principles of Rotation.*

In purchasing a farm we do not merely aim to gain possession of a superficies on which plants may be set: the object is to obtain such a natural compost of mineral and organic matters as may afford nutriment to plants, in the most perfect manner and for the longest time. If, in a particular locality, there be but one or two remunerating crops our object is to secure a soil which will best feed these. The affinities of plants have been already set forth, whereby a judgement may be formed of the fitness of the farm. In converting the minerals of the earth into crops we must adopt such a system as not to exhaust it too rapidly in one respect, without drawing any resources from another part. If in a situation where every crop is marketable, we adopt a series which takes from the earth only phosphoric acid, we do ourselves injustice by turning to no advantage the purchase of azote, lime, potash and sulphur in the soil.

By a well digested succession of crops we economize each body of the soil, converting it into money without loss or improvidence. As we have paid for every kind of plant-food in the earth we incur a loss by allowing any part to remain unappropriated. Instead of cultivating one crop and going abroad for manure in a year, or two, by cautious economy, we obtain that manure at home. The soil presents us with a magazine of saline matters or plant-food, for the most part in an insoluble condition. Annually, the dews of evening and showers act on the insoluble materials, and dissolve a portion: by tillage and judicious management more is rendered available. If the crops do not appropriate all the parts rendered soluble, some percolate into the soil and are wasted. The exposure of the earth, and most crops, rapidly deprive it of organic matter, and it becomes unfit for the growth of many, and diminished in fertility for all plants. By carelessness much waste is thus brought about, and this likewise occurs if manures be used. Farm-yard manure is but a condensed fertile soil, it merely wants the sand and clay which are for the most part mechanical components of lands, and contains the saline and azotized matters constituting the plant-food. Guano represents the soil also, but the fertilizing ingredients are here extremely condensed.

When a good farm, or stable manure, or guano is purchased, we obtain azotized matter, phosphoric acid, salts of lime, of potash, of soda and compound, of sulphur, all of which will be lost to the surface tillage, by volatilization, or percolation in solution, if neglected; or all of which may be reaped in harvests if judiciously managed. This end is to be accomplished only by a suitable rotation, which is therefore, as we have heretofore asserted, an economical expedient only.

As we are engaged in discussing general principles, it is no part of the subject to consider the case of particular soils and manures; but it may be remarked with regard to these, that if the soil be peculiar, as calcareous, green sand, etc., or the accessible manures, as gypsum, marl, refuse fish, be not perfect composts, the rotation must be adapted to the case and does not require the elaborate system necessary for more complex soils and manures. We must either give such land the complex character of the most fertile soils, an expensive process, or adapt the crops to meet its defects. But an opinion is not to be hastily formed of the nature of any soil; we may readily ascertain if clay or sand predominate, if it be rich in organic matter or lime, but before an accurate conclusion can be reached we must be certain that it does not contain alkaline silicates, phosphoric or sulphuric acid, and these are not readily detected even in the richest soils.

When the land or manure contains every kind of plant-food in legitimate proportion, with no great excess of any, as is the case in good soils, the problem to be solved is the system of rotation which shall economize all these ingredients. As to the question of market, it is local; nor do we consider whether grazing be adopted or the crops directly sold, as this in no way interferes with the principles in hand. If we sell oxen, sheep or wool, we deprive the soil of certain of its saline and organic matters, and the rotation must be filled up so as not to waste such as are not sold in this form. If we employ complex manures, true economy does not alter the rotation, each crop is enlarged, but the substances removed from the land or lost will be similar. It may be well to consider one point more fully. If a short rotation be adopted to improve the soil, a time will arrive when the improvement being effected, a new class of more exhausting plants may be introduced, but these are in all cases introduced according to the same principles. There is nothing gained after the soil has reached a certain tilth in continuing the improving system, the object is now to reap our reward; but to do this in such a way that at the end of the rotation the soil shall not have fallen below a certain standard, it is then to be refreshed either by manure, meadow grasses, lucern or other suitable means not now under consideration, but belonging to the topic of improving the soil, and not that of rotations.

The farm having reached its high point of tillage, by suitable means, is now to be cropped for profit, and reduced thereby to a certain practical standard —what are the general principles on which this cropping is to be conducted? Obviously by a system of rotation, during which every saline and azotized matter that becomes soluble is removed, and no part is wasted. This can be accomplished only by introducing such crops as have severally an affinity for the various kinds of plant nutriment, and adapting them to the proportion of food present in the soil. Phosphoric acid is the rare ingredient of soils and ma

nures, excepting guano and bones, the former of which contain 12 and the latter 25 per cent. of this body. Next after this is the azotized matter which forms a small per centage of vegetable mould (0. 5 to 3. 0 per cent.) and is therefore to be removed cautiously. Sulphuric acid is present to some extent in all soils, abounding most in ancient marls and gypseous formations. The supplies of lime and alkalies are very much greater than any of the preceding bodies; the former attaining 10 and the latter 4 to 5 per cent. in rich alluvial lands. The extent to which we may remove these in a rotation is as their probable amount in the soil, which may be taken in general terms after the following rates per cent., in a perfect alluvial soil. Phosphoric acid 0. 20—azotized matters 0. 25—sulphuric acid 0. 10—alkalies 2. 00—lime and magnesia 5. 00. In estimating the consumption we must know the amount and kind of bodies removed with each crop. The difference of average crops in this respect is remarkably striking, and the subject has been fully detailed in my lectures in the University. It may be proper, here, to adduce by way of illustration, a few cases. A crop of wheat of 25 bushels with straw removes 123 lbs. of inorganic matters, consisting of about 12 lbs. of phosphoric acid, 90 lbs. of silica, 15 lbs. of alkaline salts. A crop of lucern of two tons removes 425 lbs. of mineral bodies, of which about 250 lbs. are lime, 20 lbs. sulphuric acid. Eight hundred bushels of beets remove about 360 lbs. of ashes, of which 316 lbs. are alkaline salts.

It would be tedious and out of place to read here the tables upon which these calculations are made, it may be enough to state that they have been made, and that they form one of the necessary items of knowledge in constructing a pefect rotation. In addition to this, every expedient used by practical men, as the introduction of cleaning crops, green fallows, depasturing fall crops, the employment of roots, etc., are to be attended to in carrying out the design of the rotation—the economy of the mineral and organic aliments of the soil. These expedients do not however, constitute principles to be incorporated in the system, but are only practical adjuncts to be used or otherwise according to local circumstances.

Recurring to the foregoing explanation of the two precepts deduced from practical writers, we find that they are sustained by the attraction of particular plants for certain aliments, and are therefore two principles for the government of rotations. To these we now add a further precept, that in the employment of foliage or root crops, to economise phosphoric acid, such as succeed each other, should differ in respect to their affinity for lime, alkalies and sulphur. Thus we have attained the following principles:

1. Seed crops exhaust the soil of phosphoric acid; and are to be introduced at intervals from each other as remote as may be expedient.

2. Certain plants require a large proportion of azotized matter from the soil; and are therefore to follow the application of the manure or to open the rotation in rich soils.

3. Certain crops recruit the soil, as respects azotized matter; and are to be employed after its partial exhaustion.

4. Foliage and root crops differ in their affinities for saline matters, and the amount which they remove from the soil; and shou'd be so introduced in a rotation as to economize those which are rendered soluble. These are also ameliorating or exhausting as respects azotized matters, and are to be selected in such a manner as to fulfil the indications of the second and third principle.

It may be proper to test the accuracy and practical value of these principles, by examining a rotation of undoubted value. For this purpose I have selected the Norfolk system, because it is well known to be the most successful ever devised; it has raised entire counties in England from sterility to the highest prosperity, and has extended wherever the soil and market were available. It consists of the following succession: first year, manure, followed by turnips; second year, barley sown with clover; third year, clover, the first crop cut, then depastured and ploughed for wheat; fourth year, wheat, succeeded by manure and turnips, as before. In this system the manure is followed by the plant requiring the most azotized matter, this is also a soda and sulphuric acid crop. Barley, the second crop, requires very much less azotized matter and exhausts the soil of only a limited amount of phosphoric acid and potash. This is succeeded by a lime plant, clover, which recruits the azotized matter and loosens the soil by its long roots. Wheat, which completes the rotation, is a potash and phosphoric acid crop, requiring a medium supply of organic matter. This rotation, when we consider the soil and the manures used, the former silecious and the latter farm-yard compost and bone earth, is a perfect embodiment of the foregoing principles. Reached entirely by experimental means, it is strictly conformable with science; and is a striking illustration of the correctness of the doctrine, that rotations form a chemical study, which, originating with Chaptal, has been maintained to our day.

In conclusion, I beg to present a few instances of the application of these principles in the construction of rotations. The plants proposed for the several soils are indicated by the probable excess of mineral matters and phosphoric acid therein. The crops which may be substituted are placed vertically under the principal plant. There is in the rotation for clay soils, a mechanical impediment, arising from the difficulty of keeping them in tilth, which influences the plan; and in sandy soils, also, it is necessary that too many hoed crops be not introduced, and that grazing be practised to render the soil compact. The rotations given are applicable north of Carolina.

I. A Rotation for Good Mixed Soils.

| | First Year. | Second Year. | Third Year. | Fourth Year. | Fifth Year. |
|---|---|---|---|---|---|
| Manure—or the soil in the highest condition. | Corn. | Oats, Rye, Barley, Clovers, Grasses, | Clovers, Grasses, | Potatoes. | Wheat Oats, Barley. Carrots, Parsnips. |

II. A Rotation for Rich Calcareous Soils.

| | First Year. | Second Year. | Third Year. | Fourth Year. | Fifth Year. |
|---|---|---|---|---|---|
| Manures, etc. | Potatoes, Hemp, Tobacco. | Wheat, Barley. Clovers, | Clovers. | Corn, Beans | Oats, Rye. |

III. A Rotation for Rich Siliceous Soils.

| | First Year. | Second Year. | Third Year. | Fourth Year. | Fifth Year. |
|---|---|---|---|---|---|
| Manures, etc. | Turnips, Rutabaga, Beets, etc. | Rye Grasses, Oats, (Spurry.) Barley. | Grasses fed off, (Spurry, " ") | Corn, Wheat, Buckwheat. | Jurusalem Artichoke, Rye. |

IV. A Rotation for Clay Soils.

| | First Year. | Second Year. | Third Year. | Fourth Year. | Fifth Year. |
|---|---|---|---|---|---|
| Manures, etc. | Corn. | Oats, Rye Clover, or Grasses. | Clover, Grasses. | Potatoes, Beets. | Wheat, Barley, Oats, Beans. |

*For the American Farmer.*

## ON THE USE OF LIME.

I published in the Farmer of 15 July 1841, an article on "the use of lime." The objects of that essay were 1st. to point out the mode in which lime as a carbonate may promote vegetation, and 2dly. to suggest the inquiry, whether lime when applied to the surface of the soil may not also be instrumental in the production of the nitrates of lime and potash, as in artificial nitre beds?

Several circumstances had then led me to believe in a double action; others have since strengthened that belief; and I have therefore been led to infer that it acts not only as a medium, through which by the aid of rain water, carbonic acid is conveyed to the roots of the plants—but also as a chemical agent in the formation of the nitrates already mentioned.

Both carbonic acid and nitrogen are admitted to be essential to vegetation; and therefore, I need not refer to authority.

In conformity with my views on the first point, I find the mode in which rain dissolves the carbonate of lime, explained by Liebig in a very satisfactory way; he says: "the stalactitic caverns in Franconia and Straiberg lie beneath a fertile arable soil, the abundant decaying vegetables or humus in the soil, acted on by moisture and air constantly evolve carbonic acid, which is dissolved by the rain. The water thus impregnated, prevents the porous limestone, which forms the walls and roofs of the caverns—and dissolves in its passage as much carbonate of lime as corresponds to the quantity of carbonic acid in it. Water and the excess of carbonic acid evaporate from the solution when it reaches the interior of the caverns, and the lime stone is deposited on the walls and roofs in chrystalline crusts of various forms." A similar process doubtless causes the formation of statactites in many lime stone caves in this country, and other parts of the world.

I apprehend a similar process takes place in the limed field of the farmer. That is, the rain imbibes from the air, and decaying vegetable matter in the soil, such portions of carbonic acid as will enable it to dissolve a corresponding quantity of the carbonate of lime, with this difference in the result, that such portions of the solution as the plants require, are absorbed by the roots, and the excess of lime and carbonic acid are either carried away in solution by the water, or as the latter evaporates the lime is precipitated not in the same form, but in the same chemical condition as in stalactitics—and hence the saying—"lime sinks," but it is not lost, for when turned up by the plough, it will again undergo the same process, and this will account for the long continued action of lime on a compact subsoil, and perhaps explain why less should be applied to a poor soil than one replete with vegetable matter, as the lime may longer retain its caustic properties, or if converted by exposure to the atmosphere into a carbonate, continue for a longer time insoluble for want of a sufficient supply of carbonic acid to enable the rain water to dissolve it.

Another highly important effect may be produced by the use of lime on certain soils. "The interesting experiments by Struve have proved that water impregnated with carbonic acid decomposes rocks, which contain alkalies, and then dissolves a part of the alkaline carbonates." And thus the same means employed to furnish a necessary aliment of one kind to the plant, is made in its very passage the instrument of preparing another for its use, or that of a succeeding generation; and such should be the effect of lime about West Chester, in Pennsylvania, where, if appearances did not deceive me, the soil contains much feldspar partially decomposed.

Though Liebig has not noticed the properties and use of lime as a manure, he has in a note 2d chap. p. 75, furnished important information on the subject. He says "during the white-washing of a small chamber, the superficies of the walls and roof of which, we will suppose to be 105 square metres, and which receives six coats of lime in four days, carbonic acid is abstracted from the soil, and the lime is consequently converted on the surface, into a carbonate. It has been accurately determined, that 1 square decimetre receives in this way a coating of carbonate of lime which weighs 0.732 grammes—upon the 105 square metres already mentioned, there must accordingly be found 7686 grains of carbonate of lime, which contain 4325.6 grains of carbonic acid."

This is either an enormous calculation, or lime can after burning, re-absorb a greater quantity than it contained in its original condition, for according to Dr. Ure, "of all common lime stones, the purity may most readily be determined by the quantity of carbonic acid which is evolved during their solution in dilute nitre or muriatic acid. Perfect carbonate of lime loses in this way 46 per cent. and if any particular lime stone loses only 23 per cent, we may infer it contains only half its weight of calcareous carbonate," consequently 100 pounds of perfect carbonate of lime will weigh but 54 pounds when the acid has been completely expelled by burning,—but according to the experiment above quoted, 7686 92 grains
of the carbonate of lime contained 4326 6 do.
of carbonate acid—that is to say 3360.4 do.
of lime used as white-wash absorbed more than one and one fourth its own weight of carbonic acid.

It is not practicable to furnish even a probable estimate of the quantity of carbonic acid 100 bushels of lime taken indiscriminately from any quarter, may

absorb when used in agriculture, as all lime stones when burned do not weigh alike—the less combined acid they contain, the less will be the loss of weight, and the loss of weight will be in the inverse ratio of their impurities. According to Dr. Ure, "six bushels of reduced or quick lime weigh from 280 to 306 pounds."

I have frequently heard the average weight of lime in this country estimated at 80 pounds per bushel. if however it should contain no more than 50 pounds pure calcareous matter, then 100 bushels, an ordinary dose for an acre of land, will contain about 5000 pounds, and if the absorption should be in the ratio, reported by L. it would imbibe 6460 pounds of carbonic acid, containing about 1880 pounds of carbon, almost twice as much as the roots and leaves on an acre can assimilate, and so in proportion to the greater purity of the lime.

I however doubt the correctness of the data on which that calculation is founded—but be that as it may, I have shown that its effects may be frequently renewed, but nevertheless, it is important to the farmer to obtain the purest within his reach. And I apprehend the lightest will generally be found the best, that is, the lime which loses the greatest weight by burning. I may not comprehend the true intent and meaning of Liebig in relation to the source from whence plants derive their carbon, as such passages appear at variance with certain principles laid down in other parts of his work. I will cite the most material, state my objections, and leave to others the task of reconciling the difference.

"Let us now enquire," says Liebig, "whence the grass in a meadow, or the wood in a forest, receives its carbon, since there, no manure, no carbon, has been given to it as nourishment? and how it happens that the soil thus exhausted, instead of becoming poorer, becomes every year richer in this element?

"A certain quantity of carbon is taken away every year from the forest or meadow, in the form of wood or hay, and in spite of this, the quantity of carbon in the soil augments; it becomes richer in humus,"—page 68.

"It is not denied that manure exercises an influence upon the development of plants; but it may be affirmed with positive certainty, that it neither serves for the production of carbon nor has any influence upon it—because *we find the quantity produced by manured lands is not greater than that yielded by lands which are not manured.* The discussion as to the manner in which manure acts, has nothing to do with the present question, which is, the origin of carbon. The carbon must be derived from other sources—and as the soil does not yield it, it can only be extracted from the atmosphere,"—page 69.

But according to Davy, "if any fresh vegetable matter which contains sugar, mucilage, starch, or other of the vegetable compounds soluble in water, be moistened and exposed to air at a temperature from 55 to 80, oxygen will soon be absorbed, and carbonic acid formed: heat will be produced, and elastic fluids, principally carbonic acid gaseous oxide of carbon, and hydro-carbonate will be evolved, &c."

Liebig mentions the "vaults of the old castles of Bergstrass and Wetheran, and says the roofs of these vaults are covered externally to the thickness of several feet with vegetable mould, which has been formed by the decay of plants. The rain falling upon them sinks through the earth and dissolves the water by means of the carbonic acid derived from the mould," &c. page 171. "All substances in solution in a soil are absorbed by the roots of plants, exactly as a spunge imbibes a liquid, and all that it contains without selection," page 148.

"But if these acids constantly exist in vegetables, and are necessary to their life, which is incontestable, it is equally certain that some alkaline base is also indispensable, in order to enter into combination with the acids, which are always found in a state of salts," page 149.

Alluding to some of the foregoing quotations, he adds, "the facts which we have stated in the preceding pages prove the carbon of plants must be derived exclusively from the atmosphere.

I am not disposed to admit his position in its utmost latitude, that meadows and forests "become every year richer in this element," (carbon.) Whether such lands improve or not, depends on the treatment they receive. I know by experience, that meadows injudiciously cropt will deteriorate, and whether woodland does or does not increase in fertility, depends on good or bad management.

He does not deny that manure exercises an influence on the development of plants, but avers that it neither serves for the production of carbon, nor has any influence upon it—and assigns as a reason, that the quantity of carbon produced by manured land, is not greater than that produced by land which has not been manured, and consequently that carbon must be derived from the atmosphere.

The following is a summary of his evidence, in support of this hypothesis. For convenience in calculation it will not be amiss to mention the relative extent of a Hessian and English acre; the first is equal to 26.917 English square feet, and the 2d, to 43.560 89 feet sq. and 800 lbs. Hessian are equal to 881 lbs. English and of the latter 60 to the bushel.

| | | product in carbon. |
|---|---|---|
| Firs, pine, beach &c., | 2650 lbs. | 1007 lbs. |
| Hay, | 2500 " | 1008 " |
| Beet roots, exclusive of leaves & small roots, | 20000 | 936 " |
| Straw, | 1780 | 676 |
| Corn, | 800—2580 | 344—1020 " |

"It must be concluded from these incontestable facts, that equal surfaces of cultivated land of an average fertility, produce equal quantities of carbon." I have no reason to doubt his facts, but it does not follow, that I must admit his conculsion; which is as before stated, "that the quantity of carbon produced by manured lands, is not greater than that yielded by lands which are not manured," page 69. Let us suppose a different condition of things—diminish the product of the meadow land by injudicious treatment, which may be done without lessening its fertility until it yields but 1250 lbs. in half the quantity of hay, and the quantity of carbon would be proportionably diminished; if that be not a fair test, pursue the opposite course, and by the aid of manure double the quantity of straw and grain, so as to make the product of an acre Hessian, relatively speaking, equal to 46 6-10 bushels to the English acre; this, though uncommon may be done. I take for granted the carbon will be in proportion—suppose the manures used, be such as yield carbonic acid, viz: the carbonate of lime and undecomposed or unfermented stable manure; the first of these two substances would furnish a base and an acid, viz: lime and carbonic acid, the latter when in a state of fermentation or decomposition will yield carbonic acid and carbonate of ammonia, which will be absorbed by the plants, and increase the quantity of carbon in the product of the soil—and this is sustained by the authority of Sir H. Davy, so far as the manure is concerned—he says: "I

filled a large retort, capable of retaining three pints of water, with some hot fermenting manure consisting principally of the water and dung of cattle. I adapted a small receiver to the retort, connected the whole by a mercurial pneumatic apparatus, so as to collect the condensible elastic fluids which might rise from the dung. The receiver soon became lined with dew, and drops began in a few hours to trickle down the sides of it. Elastic fluid was likewise generated; in three days, thirty five cubical inches had been formed, which when analyzed, were found to contain twenty one cubical inches of carbonic acid; the remainder was hydro-carbonate mixed with some azote; probably not more than existed in the common air in the receiver. The fluid matter that collected in the receiver at the same time, amounted to nearly half an ounce; it had a saline and disagreeable smell, and contained some acetate and carbonate of ammonia." "Finding such products given off by fermenting litter, I introduced the beak of another retort filled with similar dung, very hot at the time, in the soil amongst the roots of some grass in the border of a garden: in less than a week a very distinct effect was produced on the grass: upon the spot exposed to the influence of the matter disengaged in fermentation, it grew with much more luxuriance than the grass in any other part of the garden," page 206. Will it not be in conformity to the principles laid down by Liebig himself,* as well as the authority of Davy, to suppose the increased product would in part at least be owing to the carbonic acid furnished by the lime and manure? or must we attribute the increased quantity solely to an increased power in the plant to absorb it from the atmosphere!

He says, "a soil in which plants vegetate vigorously, contains a certain quantity of moisture, which is indispensably necessary to their existence; carbonic acid is likewise present in such a soil; whether it has been abstracted from the acid, or has been generated by the decay of vegetable matter," page 83. But asks, "whence did the first vegetables derive their carbon!" "And in what form is the carbon contained in the atmosphere?"

It exists in the atmosphere in the form of carbonic acid, that is, carbon united to oxygen. It has been shown by Priestly, Sennebier, De Saussuer and Ingenhauss, that the carbonic acid of the atmosphere serves for the nutriment of plants, but they have not shown, so far as my information extends, that it is not derived from any other source.* There can be no doubt that the vegetables of the present time do imbibe a portion of their carbon from the atmosphere, nor that the original creation of plants were also in part sustained from the same source.

And so far as we know, or rather can infer from what is believed to have been the existing state of the elements, when this world was in a chaotic state, the carbonic acid, which now exists in solid rocks, may once have floated, as one of the constituent parts of the atmosphere. But with that period we have nothing to do, and I must confine my speculations to the period of the creation of plants; and which, no doubt did then in part derive their carbon from the atmosphere, but it does not necessarily follow that they were limited to that source alone. He says, "let us suppose that a soil had been formed by the action of the weather on the component parts of granite, granwacke, mountain limestone or porphyry, and that nothing had vegetated for thousands of years, now this would have caused a magazine of alkalies, in a condition favorable for their assimilation by the roots of plants." It would be useless to enquire, whether the earth had or had not been for thousands of years in that condition; I for one believe, its surface was suited to all such plants as were then created; and that every inorganic substance necessary for their growth and perfect development, had been duly prepared and in a condition suited to their organs—and that the seasons were then as now suited to their organization.

He says, "carbonic acid, water and ammonia are necessary for the existence of plants, because they contain the elements from which their organs are formed; but other substances are likewise requisite for the formation of certain organs, destined for special functions peculiar to each family of plants. Plants obtain these supplies from inorganic nature. In the ashes left after the incineration of plants, the same substances are found, although in a changed condition."

"Many of these inorganic constituents vary according to the soil in which the plants grow, but a certain number of them are indispensable to their development," page 147.

"Most plants, perhaps all of them contain organic acids of very different composition and properties, all of which are in conbination with bases, such as potash, soda, lime and magnesia," page 148.

"But if these acids constantly exist in vegetation, and are necessary to their life, which is incontestable, it is equally certain, *that some alkaine base is also indispensable*, in order to enter into combination with the acids, which are always found in a state of salts; all plants yield by incineration, ashes containing carbonic acid; and therefore must contain salts of an organic acid," page 149.

"Any one of the alkaline bases, may be substituted for another, the action of all being the same, and the conclusion is therefore by no means endangered by the existence of a particular alkali in one plant, which may be absent in another of the same species. If this inference be correct, the absent alkali or earth must be supplied by one similar in its mode of action, or in other words by an equivalent of another base," page 150. "Of course, this argument refers only to those alkaline bases, which in the form of organic salts form constituent parts of the plants; now these salts are preserved in the ashes of plants as carbon-

* NOTE—L. is not altogether consistent. He says, "when a plant is quite matured, and when the organs by which it obtains food from the atmosphere are formed, the carbonic acid of the soil is no further required," page 106. "The power which the roots possess of taking up nourishment, does not cease so long as nutriment is present," page 107.—"Plants thrive in powdered charcoal, and may be brought to blossom and bear fruit if exposed to the influence of the rain and atmosphere," page 118. "It is known, however, to possess the power of condensing gases within its pores, and particularly carbonic acid, and it is by virtue of this power, that *the roots of plants are supplied* in charcoal exactly as in humus, with an atmosphere of acid and air, which is renewed as quickly as *it is abstracted*," page 116. "When we give to a plant nitrogen in considerable quantity, we enable it to attract with greater energy from the atmosphere the carbon which is necessary for its nutrition: when that in the soil is not sufficient, we afford it the means of fixing the carbon of the atmosphere in its organism," page 234.

* Plants are supposed to evolve more oxygen than they imbibe from the atmosphere.

ates, the quantity of which can easily be ascertained," page 150.

And thus the soda of certain marine plants is undoubtedly from the muriate of soda—with which they are supplied from their situation—since it has been ascertained concerning some of them, that where transplanted to inland situations they cease to afford soda and only yield potash. Davy informs us that "the earths found in plants are from silica, or the earth of flints, alumina or from clay, lime, and magnesia, the lime is usually combined with carbonic acid," p. 81.

It also appears from Chaptal, that the three earths which form the basis of the most fertile soil, enter into the composition of plants. Bergman has proved this by analysis of several kinds of grain; and Ruckert, by the results of his experiments upon a variety of vegetable productions in a way to put it beyond doubt—about 100 parts of ashes well leached, and consequently disengaged of all their salts yielded, viz:

| | Silica. | Lime. | Alumina. |
|---|---|---|---|
| Ashes of Wheat, | 48 | 37 | 15 |
| " Oats, | 68 | 26 | 6 |
| " Barley, | 69 | 16 | 15 |
| " Rye, | 63 | 21 | 16 |
| " Potatoes, | 4 | 66 | 30 |
| " Red Clover, | 37 | 33 | 30 |
| Divided by 6) | 289 | 199 | 112 |
| gives an average of | 48 1-6 | 33 1-6 | 18 4-6 |

Shewing that lime formed an average of nearly one-third of these six several products—all those in which silica predominated, the husks and stems especially, require silica—this table clearly proves the necessity of lime or an equivalent, in the formation of the several products, and being usually found as a carbonate, must have been taken up in solution with carbonic acid.

I have thus shewn the following results, and chiefly by the authority of Liebig, viz: that lime will absorb carbonic acid, and that water impregnated by carbonic acid will dissolve the carbonate of lime, and rocks which contain alkalies, and dissolve a part of the alkaline carbonates—that not only carbonic acid but inorganic substances are necessary—that inorganic substances vary with the soil and situation—that an alkaline base is indispensable, and one may be substituted for another—that all substances in solution are absorbed by the roots of plants—that perhaps all plants contained organic acids, combined with a base such as potash, soda, lime and magnesia—that these substances are preserved in the ashes of plants as carbonates—and that analysis of six different products shewed an average of 33 1-6 per cent. of lime in their composition.

I think we have an undoubted right to infer that the same laws which now influence the growth and full developement of plants did so at the period of their first creation, and hence that all inorganic substances, were then supplied as they now are—that all substances held in solution were absorbed by the roots as at the present day—that water impregnated by carbonic acid of the atmosphere, acted on the lime stones and other soluble bases—that the solution was absorbed by the plants, and that all the elements necessary for their growth and fruition were assimilated as they now are—and if so, that the atmosphere is not the only source from whence carbonic acid was then or is now directly supplied to the vegetable kingdom.

Chemistry has unfolded many of the secret operations of nature—time and an increasing thirst for knowledge, will do more than has yet been accomplished, and the farmer may look forward with hope and confidence to the results of future investigations. It is an exact science, and when any given thing has been fully tested, and its truth proved by experiments, which leave nothing to the contrary to be inferred, it should no longer be questioned—but though agricultural chemistry has established many important points, it yet has its theories, which remain to be proved, and which until finally settled, must be considered open to fair investigation. It is a path which has been trodden by few—its sphere of action presents such varied combinations of soils, climate and production, independent of many mysterious operations of nature, which frequently elude the eye of the most inquisitive observer, that the longest life devoted to the subject is wholly insufficient to investigate and explain them all.

The laws of nature undergo no change—their operations are constant and uniform, and that which to the limited comprehension of man often appears, as bordering on the miraculous, will be found, when fully investigated, in strict accordance with established laws.

*Perdita.*— For I have heard it said,
There is an art, which in their piedness,
Shares with great creating nature.
*Polexines.*— Say there be—
Yet nature is made better by no mean,
But nature makes that mean—so o'er that art,
Which you say adds to nature, is an art
That nature makes; you see sweet maid we marry
A gentler scion to the wildest stock,
And make conceive, a bark of baser kind,
By bud of nobler race. This is an art
Which does mend nature—change it rather—
The art itself is nature.——*Winter's Tale.*

(To be Continued.)

## AMERICAN AGRICULTURAL ASSOCIATION —ALPACA SHEEP—THE POTATO DISEASE EXAMINED.

At the University, last evening, the above named Society held its regular semi-monthly meeting—Hon. LUTHER BRADISH in the chair.

The minutes of the last meeting were read and approved, after which the Corresponding Secretary made a report of his proceedings with regard o correspondence with kindred societies, etc.

In relation to *Alpaca Sheep*, Col. CLARK reported from the Committee on that subject. Two thousand dollars have been added to the funds now on hand for the introduction of that breed of animals into the United States. The Colonel begged leave to call upon Mr. Williamson for some remarks on this subject.... Mr. WILLIAMSON said the Alpaca is an animal that endures a great deal of hardship. The difficulty most common in its native regions is that sufficient attention is not paid to its food. Their habits are something like those of the Canadian Horse—picking out what no other animal will eat, and while there is snow always out—even if comfortable shelter were provided. They can be brought into the United States at a very small expense, even across the Isthmus. An agent could be sent to South America at small cost, and when there he could charter vessels—whalers, for instance—for $200 each, to take the animals down to the Isthmus, when the best way of transporting them to the States would be by driving. The expense

of taking the animal from the mountains to the sea coast is $2 each. The better port for shipment is Chagres, but Conception is also very good. The mountain variety of this animal is decidedly the best.

Vice-Chancellor McCoun said he wished to bring to the notice of the Society a subject of great interest to this country and also to Europe—the *Potato Disease*. He would introduce a Resolution in this connection, but wished first to make a few remarks on the origin of the disease, which first broke out in 1843 in Europe. In 1844 it made greater progress than in the preceding year, and in 1845 it had assumed decidedly the appearance of an epidemic—its focus being, apparently, Belgium, whence it seemed to have spread to all parts of Europe—as far North as Sweden and Norway—East, to some of the German states—South to Bordeaux in France—and West, to the British Islands. In this year 1845 it began to create some alarm, and a Committee of scientific gentlemen was appointed to inquire into the cause of the disease. The first discovery was made by Dr. Morren, who attributed the sickness to a fungus in the tuber.

The Chancellor then went over the whole ground, giving the opinions and experiments of a large class of scientific men throughout the cities of Europe. At the close of 1845, the researches of these gentlemen were published. Starch as is well known, is the principal ingredient in the potato tuber, and is contained in little globules of granules found in the cellular tissue of the tuber connection with albumen. The cellular tissue is composed of gluten and some other substances. An instance is mentioned in which by excessive moisture in the potato, a bursting of this cellular tissue was caused and thus the best part of the whole tuber was destroyed, and the growth of fungi followed—so that the potato was rendered worthless.

During the year 1846, a gentleman investigated this subject who has had nothing to do with any of the former experiments, and he has proved, to his own satisfaction at least, that the true cause is an *insect*. The Chancellor said he had just received from London a copy of this gentleman's book on the subject. His name is Alfred Smead, a distinguished surgeon; and the Chancellor thought that this work would prove an interesting one. It will soon be republished in this City. The insect Mr. Smead says is a species of *Aphis*, and is the primary cause of disease in the plant. It attacks and sucks the *leaf*, generally commencing on the under side and continues its operations until it extracts all moisture from the plant, which in due time dies down to the ground, and of course the tuber perishes with it.

The Chancellor said his purpose in introducing this subject was to propose a Resolution, the substance of which was the suggestion that a Committee be appointed in behalf of the Association to ascertain if a species of the Aphis or other insect is the cause of the disease in *this* country—and that if not able to ascertain this season, they should examine personally and fully, as soon as practicable, and report to the Association....The resolution was finally passed and five gentlemen appointed as the Committee—Messrs. McCoun, Maxwell, Pell, Underhill and Stevens.

Hugh Maxwell, Esq. made a few remarks on this topic, referring to the investigations of Dr. Playfair of England, and said he approved of the Resolution previously offered. One fact he would wish to call attention to. Last Fall a neighbor of his stated to him that in digging his potatoes he had found imbedded in the stalks of all that were diseased, several insects.

Chancellor McCoun replied that this circumstance is frequently observed. It is not the *cause* of decay, but a natural consequence of a decay of a whole plant ....A gentleman present stated that he had seen the cut worm in perfectly healthy stocks....Mr. Pell followed—saying that on his farm he had observed a number of insects on his potato stalks, and had noted the same appearances in Dutchess county, Albany and Schenectady, and their vicinity. He asked the farmers what manure they had used on land where he observed fine healthy potatoes growing. They told him *lime*; and on fields where this was not used, the plants were covered with a species of very full green insect, and inside the stalks was the black insect. On these insects lime has a bad influence, apparently—for when it is used, they never appear.—In answer to an inquiry, Mr. P. said that cutting off the blossoms of potatoes near the time of ripening has the effect of increasing the size of the tubers.

Mr. Williamson read a communication on the Potato. From an old Spanish work of 1762 he had translated a short account of the extinction of the entire potato crop of New Grenada, Venezuela and Ecuador. The crop had rotted in the ground or died while in growing state—a committee was appointed to investigate, and they reported that the only cause they could discover was that the potato was run out. Mr. W. said he had sent some time since to New Grenada for seed of the potato there cultivated, and a few days since a portion had arrived, which he wished to exhibit and distribute to members present. There were undoubtedly two varieties among this seed, but both were fine looking.

Mr. Maxwell asked an explanation of the property in the potato disease which causes one-half of a tuber to be perfectly good and the other half entirely worthless....Col. Clark replied that the different parts of the potato ripen at different times—the end on which the eyes' are situated maturing first.

A gentleman present stated that he had *preserved* Potatoes quite well in charcoal and sand. very dry.

Dr. Underhill thought it not proper to ascribe all diseases of the potato to one cause. Two or three years previous to the breaking out of the Disease, he had observed an epidemic, as it might be called. There were exceedingly heavy rains while the ground was heated to 85° (in the month of July.) This was in Westchester county. Within two days after these heavy rains, the tops of the potatoes began to die and the skins of the plants were blistered, as if by scalding water. All the potatoes within three inches of the surface of the ground decayed within less than ten days after the rain. Vast quantities of the Potato were thus lost in that county, and he was confident it was from the cause he had mentioned, and not from the disease then under consideration. His observations were not confined to one field, but to a number.—*N. Y. Tribune.*

---

Bed Bugs.—After trying every other method I could think or hear of, ten years ago I commenced treating these noxious intruders with quicksilver, and I have found it more effectual than any thing else. Take half an ounce of quicksilver, the white of one egg, and beat together till well incorporated: then wash the bedstead clean in cold water, and apply the mixture with the feather end of a quill, to every joint and crevice. If the first application is not sufficient, try it again, but let there be no getting out of patience or scolding. I only find it necessary to apply the dressing once a year; and although I cannot say I have not seen a bug in my house the past ten years, I can say I have seen very few.

*From the Transactions of the Delaware Agricultural Society.*

## THE REPORT OF THE COMMITTEE ON PLOUGHING.

At 2 o'clock, the exhibition grounds were deserted for the Ploughing field, where the Ploughmen had already resorted, and were busily engaged in different parts of the field, followed by crowds of their friends in trying their Ploughs, regulating their set, and in practising their teams.

At half past two, they were called up to make their entries, and draw for lands, ready for a start. The immense crowd of spectators in carriages, on horseback and on foot, took position on the four sides of the grounds laid out for Ploughing, embracing six or eight acres, and forming an amphitheatre or hollow square.

There were fifteen entries, as follows:

E. A. Collins; Wiley Plough; land No. 1.

Richard Carter; Prouty Plough, No 5½; land No. 2.

John Hollingsworth; Moore Plough, No. 8; land No. 3.

Francis Sawdon; Moore's Plough, No. 8; land No. 4.

George Lofman; Moore's Plough, No 8; land No. 5.

David T. Morgan; Moore's Plough; land No. 6.

John Newlove; Prouty Plough, No. 5; land No. 7.

William Neville; Beach's Concave Plough, No. 11; land No. 8.

George Piper; Beach's Plough, No. 11; land No. 9.

James N. Cleland; Moore's Plough, No. 8; land No. 10.

William Banks; Prouty Plough, No. 5½; land No. 11.

John Everson; Moore Plough, No. 8; land No. 12.

Thomas Truitt, Prouty Plough; land No. 13.

Robert Fountain; Moore Plough, No. 7; land No. 14.

Charles Carter; Moore Plough, No. 7; land No. 15.

Each ploughman first struck out his own land as it had been previously staked, by going one round; and here it was that the great skill of our ploughmen in running straight lines, exhibited itself.—Never did Paul Hoover line a bee to a hive, straighter then they went to the opposite stakes; and without flattery, and with truth, it may be said, that the compass itself would, in reference to many of the furrows drawn, have indicated no deviation from an entire straight line.

The fifteen teams now came up abreast, and every ploughman had his position; ready for the word "go." The Committee may here state that the ground selected for the match, was such as was calculated to tax to the greatest possible extent, the skill and perseverance of the ploughmen. So far from being a smooth green sod, which is generally selected, the ground was covered with a heavy matted crop of clover, blue grass, and fox tail, and in addition to all this a straggling crop of tall weeds. It was a clay soil, and for the most part very tenacious, and rendered particularly hard and compact by the drought of the season. The first round seemed to have satisfied the ploughmen of what they had to do: few seemed sanguine, and none apparently confident of the result, though among the entries were no less than four first premium men, the successful candidates of other fields. Indeed there was an anxiety felt by some of the ploughmen, and a doubt expressed, as to whether they would be able to overcome the obstacles that opposed them, so far as to make the performance even creditable in the eyes of the thousands that beheld them, and who could only judge superficially of the difficulties with which they had to contend. The Committee, for these reasons, permitted the use of chains to the ploughs, and also allowed to each a cleaner.

At the word given they got under way. The teams were so well trained that the heavy draft opposed no opposition to a fair pace. There was no halting or pausing, but furrow after furrow, was rolled up, each as true and perfect as the last, or if marred in the slightest, from any cause, the comments of the spectators soon announced the fact in tones even audible to the ears of the ploughman himself. But the remarks were generally in a friendly and encouraging spirit, and indeed it was not a little interesting to hear the comments that greeted the ploughman as he each time came out, as "That is well done;" "You are doing well—stick to it;" "Keep cool," &c.

The ploughman himself, with every nerve braced, a strong arm, a quick and ready eye, apparently unconscious of every thing around him, directed his Plough with his utmost skill—at most a furtive glance as he turned at the end, down the ribboned furrow he had just cut, was the only instant he was attracted from his task, and as if gathering from the view hope to encourage him to greater efforts, again he would push down his land apparently watching his Plough and coaxing his team with a "Wha, padder, wha," for an effort that should surpass the last.

But now all was accomplished but the last furrow, the cleaning out furrow, the great test of the ploughman's skill—all, however well done, may be marred in an instant by the slightest baulk here. The spectators crowd up—the voices of friends are heard encouraging to coolness and to take time, but the good ploughman has already half anticipated his task; but a single narrow strip, not varying one half inch in width the whole distance, is all that remains—his Plough is pitched, and the completely inverted sod is upturned leaving the land with the appearance of having been handsomely *divided*, not ditched or gullied, but neatly separated by the furrow, and giving to the whole a beautiful and perfect finish. Such certainly was the performance, and such the result on most of the lands ploughed at this match.

It was this description of Ploughing, that the Committee were called on to judge and to decide upon—to decide as to the relative merits of each performance. The task was by no means easy. That they might secure for their award on the part of all, the concession of perfect impartiality, the Committee designated three of their number to act as a Sub-Committee and to retire from the ground, and not to come upon it, until after the ploughing was completed. They were Washington E. Moore, Francis Sowdon and John Smith. Without knowing who ploughed the particular lands, but called on to examine the fifteen that had been ploughed, and to designate the four best among them, these members of the Committee, after the most careful examination, and taking the merits and defects of each into account so far as their judgment and experience would enable them to do so, came to the conclusion that was announced on the ground, namely, that John Newlose was entitled to the first premium; William Banks, to the second; John Everson to the third, and Thomas Truitt to the fourth.

There were several other lands that were remarkably well ploughed. The Committee would not designate except in one instance, and they do this to point

out on the part of the individual a merit deserving special notice, namely, that of receiving and abiding by, without a murmur or complaint, the decision of the Committee appointed to judge and decide between the competitors. None doubted that Robert Fountain's land was ploughed well; he had made a most spirited, and as some probably thought, a successful effort for one of the premiums, But the Committee decided otherwise, and with this decision Robert Fountain was the first to express his entire satisfaction, and to congratulate his successful rivals.—The grace of acknowledging a defeat may equal the glory of winning a victory. The Committee would point out this example as worthy of imitation on all future occasions. Let the opinions of the Commmittee be respected as the just and impartial judgment of those called to decide.

The Committee deem it but justice to one other of the competitors for the premiums, to notice the peculiarly embarrassing circumstances under which he carried on the contest. The ground ploughed extended across from one slight hill to another. The land in the centre of the valley, being land No. 10, was drawn by James N. Cleland. The great growth upon it of grass and tall weeds was obvious to the eye, but this held out no terror to so good a ploughman as Mr. Cleland. It was not till he entered upon it and discovered from the wash, &c., not only a variety of soil, but from the water that must at times have lain upon it, that it turned up in many places in very large clods or flakes of earth, that Mr. Cleland fully contemplated all the difficulties he had to contend with. Mr. Cleland, as having been the successful candidate last season, and having borne off the Society's first premium, was looked to as one whose reputation was established, and from whom the most finished work might be expected. But he soon saw that both his skill and strength would be taxed to the utmost to perform any thing even respectable, and not to allow the general appearance of the field to be marred by a rough and unsightly land. His efforts to this end—for the credit of the field—aided by his fine and well trained and powerful team, were so far successful as to make his work quite respectable, and that is the most that can be said of it. and which is indeed high praise, considering what he had to contend with.

The Committee congratulate all the ploughmen on the results of the match: they congratulate them and thank them for the interest they contributed to the day, and they conclude in the language of the beautiful Ode written for the occasion,

" God bless Columbia's yeomanry,
And give them happy homes."

A second match came came off between the Boys. There were five entries, namely: George Jackson, George Grebb, Thomas Jackson, John C. Clark, Jr., and Henry Bird. The premiums were taken by the four first named, in the order they are given—three of them using the Prouty and one the Wiley. The ground was so very hard that it taxed the strength of our young friends severely, still they stuck to their work and persevered to the end. It was surprising almost that they could plough there at all, but they did plough, and some of them made highly respectable ploughing, and nothing could exceed the emulation they evinced to excel.—The influence of all this upon their future character cannot but be highly beneficial.

JOHN C. CLARK, *Chmn.*
BRYAN JACKSON,
JOHN W. ANDREWS,
WASH. E. MOORE,
FRANCIS SAWDON,
JOHN SMITH,—*Committee.*

## ON LIME.

*To the Editor of the American Farmer.*

MANFRED, *Jan'ry 20th*, 1847.

*Mr. Editor*:—Having seen several communications in your valuable paper concerning lime, I concluded to address an enquiry to you on a subject fraught with so much interest to the agricultural community. I wish to know your opinion of the following method of liming land, it is this: Immediately after the lime has been burnt, and before it is slacked, haul it out, and put it in heaps the required distance apart, (say 16 feet square and ½ a bushel at each corner, which gives about 80 bushels to the acre,) then let a hand follow and cover over the unslacked lime with earth, then let another hand follow after and make a small opening on the top of the heaps by removing the earth, and pour a sufficient quantity of water in the aperture to slack the lime and cover up the hole thus made; when the lime is sufficiently slacked let it be immediately spread and harrowed in. What I wish to know is whether or not it is a better way of liming than the old way, that is, whether it acts better? Be so kind as to give us the best method of liming.

Very respectfully,
WILLIAM DOWNEY.

*New Market, Frederick Co., Md.*

### ANSWER.

Without expressing any opinion as to whether the plan suggested by our correspondent is better than the old mode, we will venture the remark that we think the one which he has marked out for himself will prove an eminently good one, and especially so if there should be much *inert vegetable matter* in his land. In that case, the sooner he gets the *freshly slaked* lime in contact with such matter the sooner will it have a chance of commencing its work of decomposition, and consequently of preparing the food of plants. Should the soil be, what is called, in the language of practical farmers—sour—by commingling the newly slaked lime with the soil, by means of the harrow it will the more speedily neutralize the free acid and render it innoxious.

Whilst on the subject, we would add the following brief instructions from the pen of that enlightened agriculturist, Dr. DARLINGTON of Chester Co., Pa., in reply to some queries put to him by the editor of the Ohio Cultivator:

## USE OF LIME IN AGRICULTURE.

In order to give our readers the most reliable and practical information in regard to this important subject, we addressed a letter the past month to that well known friend of agricultural improvement, DR. WILLIAM DARLINGTON, of Chester county, Pennsylvania, who in addition to high attainments in science, possesses large experience in practical agriculture; and from residing in a district of country where lime has been generally used by the farmers for many years past, he has the best possible opportunities for observing its effects, and the modes of its application.

We bespeak therefore the fullest confidence of our readers in behalf of the instructions with which he has favored them; and we tender him our sincere thanks for his kindness on this and other occasions. —ED. OHIO CULTIVATOR.

LETTER FROM DR. DARLINGTON.

*West Chester, Pennsylvania, January 16*, 1847.

M. B. BATEHAM, *Esqr*:—*Dear Sir*.—Yours of the 9th inst., expressing a wish for some practical in-

structions in regard to "the application of *lime on wheat soil*," came to hand last evening. Although this is a region in which lime is very extensively used, in Agriculture, I do not know that I can refer you to any particular individual, with a prospect of your obtaining more than the every-day observations of farmers, on the subject: nor does any published work, of special importance occur to me at this moment. That excellent work, the *Farmer's Encyclopedia*—published in 1844—contains some judicious remarks under the article *lime;* but they are brief. I have, in several instances, furnished brief sketches of my own experience, and opinions, on the use of lime, to gentlemen in different parts of the United States; and as I cannot now put you in a way to obtain information elsewhere, I am very willing to recapitulate the substance of what I have communicated on other occasions.

In *Chester County*, Pennsylvania, *lime* is annually and regularly applied to the fields, in succession, by all good farmers. It is found beneficial in every kind of soil; but perhaps more conspicuously so in that where *clay* predominates. I understand, however, that it is found highly valuable in the *sandy* soil of New Jersey,—and that it is, of late years, very extensively used in that State.

The practice, in this region (Chester county,) for many years, was to apply fresh slacked lime to the ground which had been ploughed preparatory to planting Indian corn; and I believe that is still the usage in a majority of cases. It has always answered the purpose, when thus applied,—as indeed it *never* comes amiss; but, of latter years, many of our best farmers have adopted the practice of using lime as a *top dressing*, on the grassy sod. I have used it in both ways; but for a number of years have preferred the *top dressing*.

My practice now is, to apply about 40 *bushels of lime* (slacked to a fine powder) *to the acre*, on the young clover and timothy in the *wheat stubble*, in the autumn, or any leisure time after harvest. I am satisfied, from long observation, and considerable experience, that this is the preferable mode, on our lands here; though it will answer an excellent purpose at any other time.

*Lime* seems to be particularly favorable to the growth of the valuable *grasses*—including all our usual *grain crops*,—but I have not been accustomed to see it applied *immediately*, to any of the *cereal grasses*, except *Indian corn*. What the effect would be, when applied directly to the *wheat crop*, I am unable to say. In this region, where *grazing* is preferred to the culture of *grain*, we rarely or never see lime applied except on Indian corn ground, and on the grassy sod of stubble or pasture fields.

The *quantity* of lime must be regulated by the soil. On very poor land, the first dressings should be light, —and grdually increased as the soil improves. On the poorest land, *twenty bushels per acre* might be sufficient; but it may be gradually increased to 50, 60, 80, or even to 100 bushels per acre, when the soil becomes rich, and full of decaying vegetable matter. As a general rule, however, I should prefer *moderate and repeated* dressings to very heavy ones. But after all —the great secret, I believe, of improving land is to *manure well all the ground that is cultivated*,—and employ *lime* as an *auxiliary*, in the mode above suggested.

I gave a brief synopsis of my views on the use of *lime*, in an Address before the Agricultural Society of Phildelphia a couple of years ago—which contains the *substance* of all I can now say. I believe I sent you a copy at the time; but lest that be lost, I now send you another copy. From that, and what I have here repeated, I trust you can extract such a statement as will suffice to induce the Ohio Farmers to try the system. I cannot but think they will find it answer a good purpose.

Excuse this hasty scrawl—and believe me very respectfully, your most obedient,

WM. DARLINGTON.

[*Extracts from Dr. Darlington's Address.*]

The farmer then must go earnestly to work to perform the duties of *his* department. The first step is to enrich his land: and this, as I have intimated, is best accomplished by ploughing no more ground than he can thoroughly manure. To accumulate manure must, therefore, be a leading object. The chief element of manure being vegtable matter, the production of that material, on exhausted soils, is necessarily slow and tedious; but we have found a powerful and valuable auxiliary, in that process, in the application of *lime*.—This mineral, judiciously applied, is known to be highly favorable to the growth of the natural family of *grasses* and especially of the more valuable species of that family. By an increase of those grasses, we are enabled to keep a more numerous *stock*, and thereby to augment the quantity of barn-yard manure. This increase of manure enhances the beneficial influence of the lime; for lime has ever the best effects in conjunction with manure,—and the dose of that mineral may be gradually heavier, as the soil becomes richer. Thus these important agents may be made to co-operate with augmented efficacy, as the work of improvement advances. The calcareous dressings promote the increase of vegetable matter; and by that very increase, their agency is rendered still more effective and salutary: so that what the Roman poet says of the progress of rumor, or *fame*, may be literally applied to the use of *lime*, in agriculture:

"*vires acquirit eundo.*"

The application of lime for the improvement of the land is, perhaps, more universal, and its advantages better appreciated, among the farmers of *Chester county*, than in any other district of our country. The practice there, for many years, has been to apply quick lime—slacked so as to reduce it to a powder —on the grounds which have been prepared for Indian corn. This was long supposed to be the most appropriate time for applying it,—and it is still generally observed; but experience has demonstrated, that the application *never* comes amiss,—that it is beneficial at *all times;* and the maxim now is, to *be sure and put it on*, some time in the year. Of latter years some of our best farmers have adopted the practice of using lime as a *top dressing*, on their meadows and pasture grounds—for every field, in its turn, becomes a *meadow*, after the wheat crop:—and I am strongly inclined to the opinion that this will be found the most advantageous mode of applying it. It mingles directly with the dead vegetable matter on the surface, and thus, as I suppose, improves the quality of that refuse herbage, as a manure. It moreover exerts a salutary influence upon the *turf*, or sod, in stiff clay soils, by mellowing it—and otherwise improving its condition. Another advantage attending top dressings of lime on grass lands, is, that they can be applied at the seasons of greatest leisure and convenience to the farmer. On the whole, therefore, I believe this method entitled to the preference; or, at least, is worthy of the consideration of practical agriculturists. Indeed, there is every reason to believe that *top dressing* —even of the driest and lightest manures, or of straw

itself, produces a more signal effect upon the growth of the valuable grasses, than results from the same materials when buried by the plough; and the subject deserves further investigation.

The *quantity of lime* employed in agriculture, on a given surface, should be regulated by the *quality of the soil*. On sterile, or exhausted lands, where the vegetation is scant, the dressing should be at first light, yet gradually increased, as the soil improves Thirty bushels to the acre, equally distributed, may be sufficient at the commencement: but, as vegetable matter accumulates, the quantity of lime may be enlarged, by degrees, to sixty or eighty bushels to the acre. Some of the best Chester county farms will bear even one hundred bushels per acre, with advantage; and it is remarkable, that the very soil that overlies the limestone rock, will bear the heaviest dressings of that mineral.

If I might here venture at a *Chester county prescription*, for the treatment of an exhausted farm, I would say to its occupant, make your fields small, or at least, plough only as much as you can manure well, when it comes to be laid down with wheat, timothy and clover: give your Indian corn field a moderate dressing of lime, preparatory to planting. The intermediate crop, between the Indian corn and wheat, may be oats, or barley, as the quality of the land may warrant; and when the wheat crop comes off, apply a top dressing of lime on the young herbage—of clover and artificial grasses—among the stubble. Proceed in this manner with each small field—or so much o each field as you can do justice to—in succession: and in the meantime, as ability permits, apply a top dressing of lime to such other fields as are to remain a few years undisturbed by the plough. Let your *stock* be of the most valuable kinds—and if they are not so, go on selecting the best, until they all become of that description;—but keep no more than can be *well kept*: and s manage your stock and the vegetable products of the farm, as to make the greatest possible quantity of manure. These are, in brief, the directions which have been found to answer upon the worn-out lands of *Chester*; and I presume they will prove equally successful in all cases, of similar soil and climate.

# AMERICAN FARMER.

BALTIMORE, MARCH, 1847.

LARGE CORN.—We have in our office, several ears of corn, raised on Elkridge Landing, by Mr. H. M. Garland, which are rarely excelled. One of the ears is of the common white variety, having 20 rows on the cob, and containing 964 grains—the ear is about 9 inches long, and is very compact. Two other ears, are of the white flint variety, upwards of 12 inches long, very large grains, and no doubt would make as much meal as the first named—and two ears of the yellow flint, nearly as long as the latter, with a beautiful grain. This corn, Mr. Garland informs us, had but two workings, after the ground was first harrowed. They are fine specimens of the capacity of the Elkridge region.

GUANO.—The attention of Farmers intending to try the guano on their spring crops, is invited to the advertisement of Mr. Whiletock on our advertising page.

MUNIFICENT DONATION.—Hon. Mr. Williams, President of the Senate of Maryland, has tendered 150 acres of land for the establishment of an Agricultural School in this State. We are gratified to find such an evidence of liberality in old Maryland, and more particularly as the object is one of primary importance to the future welfare of the State.—It is all important that the science of Agriculture should be introduced into our primary schools, and that Professorships should be established in our Colleges and Seminaries for the dissemination of intelligence among the rising generation, of that character which comes home to the business pursuits of three-fourths of the people of the State—for it is in such circumstances alone that any considerable amount of good can be effected, as it is out of the question to expect much change in the study and practice of those who have all their lives thought of little else but following in the footsteps of their fathers, notwithstanding every other science is on the advance.

*Cause of the Potato Rot.*—Mrs. Bailey, a very aged lady, one of the Revolutionary heroines of Croton, Connecticut, has, as she thinks, discovered the *cause* of the Potato Rot. She says that when the traitor *Arnold* died, they buried him in Nova Scotia, and the poison is now spreading throughout the continent, infecting potatoes with the disease which has so destroyed their product.

It is most certain, that the good old lady, by her *discovery*, has entitled herself to more credit for patriotism, than for knowledge in vegetable physiology,—and yet, she is possibly as near the truth as many others who have written upon the subject, whose pretensions to scientific attainments are not as modest as her own.

*To the Editor of the American Farmer:*

*Dear Sir*,—I notice in your January number, the Transactions of the Prince George's Agricultural Society,—wherein mention is made of the farm of Col. Walter W. W. Bowie. Perhaps a small hint from you would induce the Col. to prepare for your next number, an account of his method of banking out the tide water of the Patuxent, together with the probable cost per rod, &c. He will thereby gratify more than one SUBSCRIBER.

[We have no doubt Col. B. will respond to the above call—it is a subject of much importance to many farmers, and we are sure he will not be backward in any good work where the interests of his brother farmers are involved.—ED.]

*Broken Winded Horses.*—Horses thus afflicted are scarcely ever cured, though the disease may be palliated by judicious feeding. The disease should consist of much nutriment in little compass, therefore the oats should be increased and the hay diminished—water should be given sparingly except at night. Mashes consisting of equal parts of ground or chopt oats and carrots should be occasionally given.—Exercise on a full stomach is injurious.

## HOW TO KEEP A HORSE'S FOOT SOUND.

[The *Horse's Foot*, and how to keep it sound; with illustrations:—by William Miles, Esquire.]

D. Appleton & Co., Broadway, N. Y., have just issued from their prolific press, a reprint, from the third London edition, of a work bearing the above title. The reader will very easily perceive that the book treats upon a subject of importance to every owner of that noble animal, the horse, as no truth is more undeniable than that he suffers more from injuries in the feet and legs, than from any other cause. Sometimes these proceed from casualties over which human foresight can have no control,—at others, from the gross ignorance in the *Smith* by whom he may have been shod.

The author maintains that five nails driven on *one side* of the shoe is sufficient; the result of 15 months experience has proved satisfactorily to his mind that shoes thus fastened are held firmly and easily to the feet, the clinches not having in a single instance risen,—a clear proof that the struggle between the expansion of the foot and the resistance of the shoe is entirely overcome by this mode of fastening. This very desirable end appears to be attained in the following manner: The outer side of the foot being the only part nailed to the shoe, carries the whole shoe with it at every expansion; while the inner side, being unattached, expands independently of it, whereby all strain upon the nails is avoided, and the foot is left, with respect to its power of expansion, as nearly as possible in a state of nature. By this method of shoeing, the author had cured corns which had existed on the feet of one of his horses for ten years. The book treats the *horse's foot* and the subject of *shoeing* in a philosophical manner; and enters into every minutia connected with the anatomy of the first, whilst his theoretical and practical views of the latter, are so allied to common sense and reason that they challenge both respect and confidence.

The work is written so as to be understood by all descriptions of readers, should be in the hands not only of every Smith, but of every horse owner who studies the comfort of his animal,—and we, therefore, commend it to the public favor.

---

We think if the writer of the article on the peculiar action of lime, will carefully review and reinvestigate Liebig's theory, of the manner in which carbon and the other substances necessary for developing and maturing plants are assimilated, he will find the discrepances which he appears to see, disappear, and that his theory is not only rational, but well substantiated by known facts.

In the first instance, the gentleman seems to think that lime serves, not only to convey carbonic acid to the roots of growing plants, but also to convert the ammonia it may meet with slowly into nitric acid, which acid unites with whatever base it may come in with. But the fact is, that it is not the lime which renders the carbonic acid capable of assimilation, but the carbonic acid with which the rain water is impregnated, that dissolves the small quantity of carbonate of lime necessary for the perfect organism of plants; any excess which is absorbed being again returned to the soil as an excrement, along with other unnecessary substances. And although ammonia, under certain circumstances, is converted into nitric acid when in contact with alkaline bases, it is not ordinarily formed, as is proved by the absence of nitrates in most soils. He disagrees with Liebig's opinion, that carbon is derived wholly from the atmosphere, and that manured lands are not richer in carbon than those which receive no manure. Liebig's meaning is, we should think, that meadows and forests in their natural state do not decrease the quantity of carbon in the soil, but on the contrary, by the annual fall and decay of leaves, etc., that more carbon is added to the soil than the plants had previously abstracted from it.—And that manure, when placed upon cultivated land, does no more than return to it the carbon and various salts, etc., removed from it in the shape of hay, grain, and other products. Again, he differs from Liebig, in thinking it more probable that the nitrogen assimilated by plants is absorbed by their roots in the form of nitrates of soda, potash, etc., than ammonia: now we know that ammonia exists in all soils in greater or less quantities, and also in the atmosphere, whereas but few soils contain nitrates, and that ammonia has been discovered in the juices of various plants. Then, as we know that ammonia exists in all soils, that it has been found in juices of plants, is it fair to suppose that nitrates are the sources from which plants derive their nitrogen, as they are entirely absent in many soils. Again, he seems to think that Liebig supposes that ammonia is derived wholly from the decay of animal and vegetable substances, but Liebig states expressly, that ammonia exists as a primary constituent of the globe. In speaking of the ammonia evolved in the manufacture of borax, he says: "*This ammonia has not been produced by the animal organism, it existed before the creation of human beings; it is a primary constituent of the globe itself.*"

---

## GUANO—BONE DUST.

*To the Editor of the American Farmer.*

*Mr. Editor*:—Dear Sir,—I am quite a novice in farming, and want to get some of your valuable advice in regard to manure—I have a field that is stiff and somewhat clayey and stoney, which was in corn last year and which I also intend to put in corn this spring. The land being rather exhausted I intended to lime it and afterwards manure either with *Guano* or *bone dust*. Now please tell me which in your opinion would be most suitable, and whether they act well with lime, and also what quantity would be suitable? Can you tell me also whether a top dressing of *Guano* or *bone dust* at this late period would be of any service to wheat. Yours respectfully,

A SUBSCRIBER.

*Baltimore County, Jan'ry 18th*, 1847.

---

In reply to the above letter, we shall take the questions in the order in which they are put by the writer, and give our opinion honestly on each, asking at the same time that no more importance may be given to what we may say, than upon investigation it may be entitled to.

Our correspondent states his land to be stiff, clayey, stoney, and rather exhausted, that it was in corn

last year and he intends to put it in corn this spring, after having previously limed it,* and that he contemplates manuring it with *Guano* or *Bone dust*—and asks:

1st. Which, (i. e. *Guano* or *Bone dust*) in our opinion would be most suitable?

In our opinion, the *Guano* would be best, because, beside containing all the elemental constituents found in bone dust, or such as are rendered analagous by the process of decay, Guano comprises other substances which are promotive of vegetable growth, and which are not to be found in bone dust.

2d. Whether they (Guano and Bone dust) act well with lime?

In our view, freshly limed fields are not the best adapted to the application of *Guano*, and that for the simple reason, that in Guano ammonia is found in three forms, viz: in that of an *urate*, an *oxalate* and a *phosphate*. In each and all of these forms it is not necessarily volatile, and can only be rendered so, to any great extent, by the application of heat—the ordinary temperature of the summer sun would cause it to be so in a limited degree—to such a degree, perhaps, as would induce it to throw out its daily supply of nutrient matter to the growing plants and give them vigor; but when we come to place these forms of ammonia in contact with *fresh lime*, that mineral being of the greater base, would seize upon the acids comprised in the urate, oxalate or phosphate of ammonia; become assimilated therewith, and thus liberate the *volatile* or fertilizing principle, which unless condensed by some other body possessing the capacity of attraction and retention, would be lost to cultivation, as it would consequently be wafted away by the atmosphere, it being of less specific gravity than that element. But this disadvantage may be obviated by the application of plaster; which may be either composted with the Guano, and sowed with it—or it may be strewn over the field so soon as the Guano may have been applied and harrowed in. Whatever may be the quantity of guano applied to the acre, whether *one, two or three hundred* pounds, a bushel of plaster to that extent of ground will be sufficient. The application of *plaster*, in the exhausted state of our correspondent's land, we consider indispensable to success, it being the more necessary to prevent the escape of the enriching properties of the manure contemplated to be applied, owing to the impoverished condition of the soil. But the plaster will do more than play the part of an economist of what may be put on the land, as it will abstract from the atmosphere and rains those nutrient gases which therein abound, condense them in its own body, and hold them, as it were, to be furnished to the growing plants, as they may be required by their wants from time to time.

*Bone dust*, could not, we think, be injured by the lime in any way—on the contrary, we believe, that by promoting the earlier decomposition of the cartilagenous matter which forms one of its constituent parts, a positive service would be rendered, inasmuch as it would thus supply an *immediate* food for the plants, which would otherwise be *retarded* in its preparation.

3d. What quantity (per acre) would be suitable?

As our correspondent represents his land as being rather exhausted, we would recommend the application of 300 lbs. of guano and one of plaster per acre, if he should determine to use Guano. If Bone dust, 20 bushels to the acre will be the right quantity.

It is but candid to state that Bone dust acts best on sandy or sandy-loam soils—indeed, that on stiff clays it is said by some that it is of but little utility—we do not incline to this latter opinion, as we believe that carbonate and phosphate of lime and gelatine will prove good on any soil, though it may act more slowly on a stiff than on a friable soil.

*Two successive crops of corn is bad culture.

## THE DAIRY—THE ORCHARD.

*To the Editor of the American Farmer:*

*Cottage Farm, Sam's Creek, Frederick Co., Md.*

*Mr. Editor*,—Knowing the interest you take in agriculture and every thing connected with it, I have taken the liberty to address you on a subject of great importance to those engaged in the Dairy business. Many persons in this vicinity have sustained great loss during the several last seasons of summer, by their milk becoming mouldy—that is, the cream before it is skimmed—it is much worse in cloudy weather; sometimes the same day it is drawn from the cow it begins to mould. It commences by spots, these increase in size, until the whole top is covered with a deep blue mould, rendering it unfit for use. I hope you or some of your experienced readers or correspondents may be able to tell the cause and preventive for it.

Whilst writing, allow me to state, that I tried your advice given last autumn, relative to young apple trees, and regret to state that it failed.

I took the sulphur, soft soap and salt, and with a brush I applied the mixture to sixty young apple trees, cleaned all the grass and rubbish away three or four feet from the trees, but I find upon examination forty are eaten entirely round by the mice.

I would here suggest, that, from my experience there is no remedy or preventive for moles or mice, but ploughing the whole orchard every fall, and dig every spear of grass from the roots of the tree; the orchard might be well manured and sowed in grain.

If you have the time to spare and it will not occupy too much space in your valuable paper, please give those matters which are the subject of this letter some attention in their proper season.

Very respectfully, your friend,

DAVID RINEHART.

February 6th, 1847.

### ANSWER.

The cause of the milk and cream becoming *mouldy*, arises, first, from the heaviness of the atmosphere in cloudy weather, and, secondly, from the *want of ventilation* in the milk house. All such houses should have windows facing each other at the four points of the compass, which windows besides glass sashes

should be covered with fine gauze-like wire, the upper glass sashes to be so arranged as to be lowered, so as to admit the ingress and egress of the wind, and thus encourage a current of air, to be at all times passing through the house to carry off and prevent the damp vapours from settling down upon the milk vessels.

The rains may have washed off the mixture from our correspondent's young trees, and thus removed the impediment from the mice—had he watched his trees and *re-applied* it, we feel very certain that he would not have sustained the loss he describes.—ED. AMER. FARMER.

TOBACCO INSPECTION WAREHOUSES.—We notice that a movement is being made in the tobacco counties of this State, to change the present system of the inspection of Tobacco, by the substitution of Inspection Warehouses in the several counties where the article is grown, for those in the city of Baltimore. A meeting was called for the 27th ult. in Upper Marlboro', Prince George's Co., for the purpose of taking the subject into consideration, as well as other matters connected with the tobacco trade.

It will be seen by the annexed proceedings in the Legislature of Maryland, that an effort is being again made to induce our government to make an effort to obtain some modification of the laws of European nations, by which this great staple of our country is so enormously burthened. A London correspondent of the Boston Traveller, says that our Minister to England, has, it is said, already brought this subject before some influential members of Parliament, and has urged the importance of a great reduction in the duties, and that there is some prospect that the present duty on tobacco imported into England will be reduced.

## LEGISLATURE OF MARYLAND.

*Feb.* 13—Mr. Stephens submitted the following preamble and resolution:

Whereas, it is rendered eminently essential, and highly important in view of the distressed condition of the tobacco interest of the States of Maryland, Virginia, Missouri, Ohio and Kentucky, that an effort should be made by the Government of the United States, to procure a reduction of the high duties imposed by Foreign Nations upon its introduction into their ports, which operate as a prohibition upon its consumption, and consequently tend to the manifest injury of the grower, by diminishing its value; and whereas it is believed, that arrangements may be made and negotiations had with Foreign Governments, by which the article of tobacco may be more freely admitted, and with less duty than is at present imposed, if a proper and reasonable degree of solicitude is entertained and manifested, by the Government in its diplomatic relations with those nations; and whereas, it is but just and proper, that other nations should extend to the agricultural products of the United States, which partake in their character of the nature of luxuries, the same liberality and favor that the United States are now extending towards articles of the same nature of foreign growth, or manufacture; and whereas, an unfavorable discriminating tax is imposed upon the staple production of this State, by those countries, with which our most intimate commercial relations exist, to the serious detriment of those who have invested their fortunes in its cultivation, and who, unless they procure a modification of the excessive duties, and burdens thus imposed, will be compelled to abandon its cultivation, which failing, the navigation and all other subordinate interests, and advantages dependent thereon, must fail with it; and whereas, the liberal policy of the United States in lessening as far as practicable the duties upon the exports of those countries, has not been reciprocated by them, whereby a preference most dangerous to our essential interest is given to foreign products; and whereas, so long as other nations refuse a fair and reciprocal exchange of products, our commercial relations with them must be injurious to the agricultural welfare of the country, which is repugnant to that spirit of reciprocity which should characterize the commercial intercourse of every enlightened nation; and whereas, the States having surrendered to the Government of the United States, the power to regulate commerce, and to form commercial treaties with Foreign Governments; therefore,

*Resolved by the General Assembly of Maryland*, That the Executive of Maryland, be requested to communicate with the President of the United States, upon this subject, with the view of inducing the Govment of the United States, by instructions to our diplomatic agents to use their efforts in obtaining from Foreign nations a reduction of the existing duties imposed on the introduction of tobacco within their respective limits.

*Resolved*, That the Executive of this State be further requested to communicate with the Executive of the several States interested in the cultivation of tobacco, asking their co-operation in procuring through the medium of the General Government, a reduction of the duties imposed on tobacco by Foreign nations, and that they be requested to call the attention of the Legislatures of their respective States, to this subject.

*Resolved*, That the Senators and Representatives of this State, in the Congress of the United States, be requested to take under their especial care, this highly important, and much neglected interest, and to call the serious attention of Congress to the subject, in order to effect a reduction of the high duties imposed upon tobacco by Foreign Governments, to a fair and equitable scale of commercial reciprocity.

*Resolved*, That the Governor be requested to transmit a copy of the aforegoing preamble and resolutions to the Senators and Representatives in Congress from this State.

Which was read the first time, and ordered to a second reading.

*Feb.* 15.—On motion of Mr. Martin, It was ordered, That the inspectors of Tobacco at each State warehouse, be and they are hereby required to report at the earliest day practicable to this House, the number of hogsheads of tobacco inspected annually at their several warehouses, with the name of the State and quantity received from each State, annually from 1840 up to 1846 inclusive.

*Feb.* 11.—Mr. Hawkins, from the select committee, to whom was referred the petitions, memorials, and statements of Thomas I. Hall & Son, and others, as agents for the owners of Tobacco, claiming compensation for storage and damage thereon, sustained in the year 1846, in consequence of there being no

room in the State Tobacco Warehouses to receive the same, reported resolutions in favor of the petitioners.

Mr. Martin reported a bill providing for the special storage of Maryland tobacco, in certain warehouses, in Baltimore city.

## POTATO DISEASE.

*To the Editor of the American Farmer.*

Dear Sir.—So much has already been said upon the subject of the Rot or Disease in Potatoes, that there seems neither room nor occasion for saying any more on the subject, nor do I intend to venture a word as tending to start or suggest a new hypothesis—holding as I do, to my old theory, that to atmospheric influence alone is to be ascribed the cause of the disease, and repeating my advice to farmers, to discard all nostrums, and to plant in such soils and with such manures as from time immemorial had been found best adapted to the culture of the Potato. For until we have a return of the ordinary and genial weather of our autumns, we are not likely to be favored with crops of sound Potatoes.

It may be admitted however, that the deleterious effects of the atmosphere might in some degree be shunned, or modified; for instance, early planting of early sorts, might by ripening, and being gathered in all August, escape, as also, deep planting on light soils (the soils best adapted to the potato) by rendering the tubers more impervious to the excessive heat and humidity, that otherwise would the more readily reach them if nearer the surface, and proportionally affect them. But I am totally opposed to adventitious and concentrated manures. The barn-yard manure, long litter, from the stables, and plenty of it, the world over, is the manure for a good crop of potatoes. It is the manure I have always used, and who in my region can compare with me for raising fine potatoes Sometimes it is true I have used gypsum, sprinkled on the manure, raked in, over the sets, in the furrow—but why did I this? Not certainly to weaken or dissipate the manure, but to protract its efficacy, keeping as long as possible a continuity of its strength throughout the formation and pending the whole time of the growing of the potatoes. By this means you could trace distinctly the blackened manure, in lime, on the surface of the ground, as turned up by the plough, on taking out the crops; this was so obvious and striking in 1842, that when I had seeded the same land that fall with wheat, a gentleman remarked, that the manure I had used was uncommonly well rotted to have harrowed in so finely.—He was not a little surprised when told it was rotted in growing the potatoes, which had just been taken from the same ground. That season I had over four hundred bushels of fine mercer potatoes to the acre, and the next season fifty bushels of white wheat to the acre, without any additional manure. If an abundance of unfermented stable manure be a cause, a prevailing cause of rot, why was not this crop rotted, and why have not the crops, so manured for a century, been diseased?

I have been led to these remarks from reading an article in your last No. on the potato disease from the pen of my spirited and intelligent friend, W. W. W. Bowie, Esqr. than whom, a more ardent and chivalric champion can no where be found on the field of agriculture. But if not a *better*, I may claim to be an *older* soldier than he; and as Brutus slew his best friend for the good of Rome, I may be permitted a tilt with my noble friend for the good of the *tillers of the soil*, without being considered at all *Brutish*. Indeed there are certain reasons why I should feel pugnacious when any presumes to teach the way of growing the "Murphies," except he comes from the sod. The late gifted and lamemted Nicholas Biddle, the able and distinguished President of the Philadelphia Agricultural Society, used to say, that it was presumptuous in any man in our society to compete with me in raising potatoes.—Alas, this badinage awakens now, other thoughts, and associations—My poor country—her wit, her humor, her irrepressable fortitude and constancy are being at this moment severely tried, under a calamitous dispensation of Providence! She has through ages borne much from other hands, may she struggle through this dispensation as becomes her, and rise from the chastening wiser, purer and better! But I must not indulge thus, else I shall forget the task I have undertaken.

In the article referred to, much consideration is given to a change or renewal of seeds—Well to the efforts of producing other sorts, and seeding with them. instead of those long in use, there can be no objection; new varieties will be produced, and much good may result from such experiments in the main; but I apprehend that seedlings will be found as liable to the rot as the oldest sorts: experience strengthens me in this opinion, for last season I had seedlings diseased, while the "Lady Fingers," a white kidney variety, which have been grown as an early potatoe some forty years on the farm I now hold, escaped entirely; nor has it been diseased any season of the prevailing rot.

Potatoes that are starved by not allowing them sufficient manure to grow to full size, may in some degree escape the disease, as there would be little of them to kill, same as poor wheat, with small heads and skeleton straw may escape blight or rust. while a well grown succulent crop promising 40 to 50 bushels to the acre may be badly blighted—but it would be bad husbandry to work for only 10 bushels of wheat to the acre, or some 40 to 50 bushels potatoes to the acre through the fear of blight and rot. It is impossible to have a good crop of potatoes without an abundant supply of manure. I have seen them planted in rich ground and well manured, but never knew them rotted in consequence; the only injurious result was, that they were not quite so mealy or so fine in flavor as they otherwise would have been, had soil and manure been better proportioned to the wants and quality of the potatoe. I recollect a tremendous yield raised on an old sheep walk—they were sound, but rather ill tasted, somewhat bitter, and were fed to the cattle, but they were as sound, so far as rot or disease was concerned, as any potatoes I ever saw. Heavy manuring on rich land is an ill judged practice, but light manuring or no manure at all, on poor lands, is still worse.

The mixture prescribed by my esteemed friend could not do much harm, provided there be first "*quantum sufficit*," of good manure, but if he will permit me to revise the prescription, I think I can render it somewhat more admissable—first, I would reject the lime, or if used, let it be sprinkled on the surface after the planting is finished—the gypsum or plaster to be used in the furrow instead of the lime. If the salt is to be used, leave out the saltpetre—leave out soot and increase the quantity of charcoal. Thus, one bushel ground gypsum, one of salt, one of ashes, two of fine charcoal—the soot and lime may be strewn any time on the surface previous to the first harrowing of the potatoes, after they are up. The mixture, as above, may be used to every acre,

strewed by hand, evenly, after the manure has been raked in or shook over the potatoe sets;—the drill, to be covered—but I protest against the dose unless there be a sufficiency of manure to support the potato in growing

My potatoes were not affected by the disease, except in 1843, and that I think was owing to their not having been covered sufficiently deep, at planting. The last season I had a fine crop of sound Mercer potatoes, over one thousand bushels, while my neighbors around me had hardly on an average more than the seed,—they still, despite all entreaty and example, plant shallow, and use the plough instead of the cultivator or hoe harrow, ridging them up on either side in a bank, exposing them the more to the action of the sun and atmosphere.

Since 1843 I have been particular in my observations as to the condition of the potato fields and patches around me, and have uniformly found that on hills with a southern exposure, and where the covering was light and shallow, the disease prevailed most—Why was this—because the tubers from their exposure and superficial covering were instantly affected by the extreme heat—sultry or humid heat, which in general provoked them to an incipient state of vegetating, hence the derangement of their tissues and partial decomposition.

Last season in taking out a patch of potatoes from an orchard on the college grounds, adjoining me, it was diseased, that under the shade of the trees, the potatoes were sound, while those in the spaces, in open ground, were considerably affected by the rot. The disease therefore is owing to the influence of the atmosphere—heat with great humidity, unnatural spring-like weather that sets every thing a growing, and blossoming; affects also the potatoes to begin to grow, as if they were planted for that purpose, hence we can easily imagine that when this action is produced, the stalks or vines that were still vigorous and adhered to them, would immediately lose their hold on the roots below, and die.

When I recommend deep planting on light dry soils I mean only as deep as would be safe to go—say 6 inches.—Every body is aware that they could be planted so deep as never to come up, and that potatoes planted deep in wet stiff soils will rot in all seasons.

I have thus, through a deep and abiding regard for the interests of the farmer, been led to question the soundness of your respectable correspondent's views upon the Disease and Culture of the Potatoe.—He is too generous I know, to ascribe to me any motive but the right one, and I am as free to acknowledge his disinterestedness and zeal in the same common cause.

Respectfully,
Your ob't. servant,
JAMES GOWEN.

*Mount Airy, Philad'a. 15th Feb'y*, 1847.

## FIRST ANNUAL REPORT OF THE OHIO STATE BOARD OF AGRICULTURE.

We have received a copy of this document, from which we are pleased to learn, by the remarks of the president of the Board, *Allen Trumble*, that the spirit of improvement has revived in a number of the counties where county Agricultural Societies have been formed, of which there are 23. We give a few extracts from the report, upon subjects of general interest, and as applicable to Maryland, Virginia and other States, as they are to Ohio:

"There is a gradual progression in the upward tendency of agriculture in the county [of Clermont.] We have a fair prospect for a respectable farmers' library. Agricultural chemistry is being studied by a few already, as well as geology and mineralogy, whilst few could tell the *name* of the "latest novel"—so far good; still, we are most of us on that old "*tread-wheel*"—that interminable circle which our ancestors have tread for the last thousand years—and too many planting and sowing by "the signs," and "*right time in the moon.*" Farmers are getting rich here from nature's bounties. We have the *same geological formation*, and nearly as good a climate as the famed PALESTINE of the old world. Shall ignorance, bad tillage, and bad government of a first luxurious, then vicious, ignorant, and degenerate race make this, as that, a desert place!

Now is the time for the philanthropist and statesman to fix the standard of worth high in the intellectual and moral temple of fame; to fix the taste and elevate this first, greatest, and noblest of all pursuits, and he has the proud satisfaction of starting his race onward and upward to that high destiny in reservation for yet purer and nobler intelligencies. How shall ignorance be driven out, superstition dethroned, listlessness aroused, lethargy thrown off, and the *man* be aroused to be what he is, *a thinking, active, superior intelligence*, rather than a plodding drone.—[*By President of Farmers' Club.*

---

FATTENING CATTLE.—At a large meeting of the Newcastle (England) Farmer's Club, an account of which we find in the Agricultural Gazette, Mr. Glover, the Secretary, spoke of his mode of self-feeding cattle. He said he was particular to have his cattle fed at stated times. The cattle he said, "knew perfectly well when meal time arrived, and were restless and uneasy when disappointed of their food." He thought "cleanliness and a good supply of litter never should be neglected. To keep the skin clean, and use the currycomb freely, tended to fatness." He remarked also that the food should also be given with regularity as to quantity.

"They should not be exposed to alternations of hunger and surfeit. The food of cattle should also be varied as much as possible. Like human beings they were fond of variety and capricious in their appetites. Two pounds of oil cake, five pounds of barley meal and five pounds of hay chaff, with a plentiful allowance of Swedish turnips, had been recommended as a daily allowance."

He spoke of the use of linseed oil feeding, which he said had been attended with much success. "The oil was sprinkled on good oat straw, layer after layer, at the rate of a gallon of oil to a week's allowance of straw. The straw to be frequently turned over, and kept two days before used, by which time the oil would be absorbed, and there would be a slight fermentation in the food." He desribed also, the mode of making Warne's Compound, which is highly esteemed for fattening cattle. "He put 116 lbs. water into a boiling cauldron, and when boiling 5 minutes, stirred into it 21 lbs. linseed meal. Then 63 lbs. crushed barley was sprinkled upon the boiling mucilage, by one person, while another rapidly stirred the mixture.—This occupied another five minutes." It is then left to cool—if there is much fire it should be put out. It should be used the next day, or by excluding it from the air, may be kept longer. The quantity given to each bullock per day is 8 pounds, with hay or straw in addition.

# HORTICULTURAL.

## WORK IN THE GARDEN.

As the time has arrived when every one, who may feel a desire to provide his family with a plentiful supply of vegetables during the ensuing season, should begin to put his garden in order, we shall endeavor to direct attention to such things as may be necessary to be done to bring about this desirable result. Besides the healthful luxuries which are secured to the *table* through the products of a well arranged and cultivated garden, the laudable pride of the females of one's family is gratified; and especially is this the case where, in addition to edibles luxuriantly growing therein, the lady of the homestead may point to the flowers of her Garden, as so many evidences of the kindly regard entertained towards her, and her offspring by him, in whom her and their love is bound up. There may be, for aught we know, labors more highly intellectual than those of Horticulture, but of this we are certain, that there are none more spiritual in their relation to the Great Author of our Being. Its toils and its fatigues serve, if properly appreciated, to remind us that the first occupation assigned to man, was that of tending a garden—that it was in that chosen spot he was taught the lesson, that the sweetest bread is that which is earned by labor—nor are there any more pure, or better calculated to make man contented with his condition; for the very abundance with which his table may be supplied, fills his mind with emotions of gratitude for the bestowal of such rich and refreshing worldly comforts, and he rises from each succeeding repast with thanks in his heart that his lot had been so pleasant and so favored.

With this brief introduction, we would be permitted to point out such work as should be immediately set about.

*Sowing Seeds.*—Prepare a border with a southern exposure, by manuring liberally with unfermented stable manure, dig this in a spit deep, rake the ground thoroughly, then put on a covering of well rotted manure, an inch or two deep, rake this in well, then lay off your border in suitable divisions, to receive the different kinds of seeds that you intend to sow. Your bed being thus prepared, sow *Early* and late cabbage seed, as the *Early Smyrna, Early York, Battersea, and Sugar Loaf*—the *large Flat Dutch, the Drum Head, and Savoy.* This, embracing early and late varieties, will secure a continuous supply of cabbages for the table or market, as the early kinds may be about being used up, the late kinds will come into play. Having sown your cabbage seeds, of different sorts, sow ashes thereon with a light hand, then rake the seed in, so as to cover them lightly, when you must pat the ground down with the back of your spade. It may be well here to remark that plant beds should not be shaded, but well exposed to sun and air. When the plants come up, if they should be attacked by lice, bugs, or other insects, mix up equal quantities of soot, ashes and flour of sulphur, and give them a very slight dusting with the mixture, two or three days in succession. Having sown your Cabbage seed; in the other divisions of your prepared bed, sow *Tomatoes, Egg Plant, Cauliflower, Broccoli, Celery, and Lettuce* seeds.

*Peas.*—Select a loamy bed, and manure it with well rotted manure, dig that in, rake your bed and lay it off into drills 4 feet apart, sow your peas therein thickly and cover with the hoe, patting down the ground as you proceed. To secure a continuous supply you can either sow the *early* varieties at intervals of 10 days apart, or sow the early and late kinds at the same time.

*Early Potatoes.*—These may be planted as soon as ever the frost is out of the ground. Sound potatoes *must* be selected, as it is useless to plant those infected with rot, and, indeed, as a precautionary means, we would advise that (for the garden culture) the seed Potatoes should be immersed in brine before being cut into sets, and when cut, that they should be dried in Ashes, Lime, or Plaster. In planting the sets, after manuring the drills, we would sprinkle a mixture of charcoal dust, lime and ashes over them prior to covering them up. When the potato plants are about an inch high, we would dust over them a mixture of equal parts of lime, plaster and salt, in such quantity as to give the young plants a gentle dusting. We do not say that this treatment *will* protect the potato from the rot, but it *may* do so, and is worth a trial.

*Early Turnips*—Towards the latter end of this month will be a good time to prepare a bed for early turnips. For this crop a compost made of 6 parts cow dung, 1 of lime, and 1 of ashes, will be found to be the best. Mix the whole thoroughly together by frequently turning over the mass, then spread one-half of the compost on the bed, and dig it in the depth of the spade, rake the bed well, then spread the other half and dig it in half a spade deep, and rake the bed thoroughly, when it will be ready to receive the seed. Previously, however, to sowing the seed—which should be the *Early Dutch*—it should be soaked in fish oil for 12 hours, then taken out, drained and dried in ashes or lime, sowed thinly, raked in and the ground compressed, by being patted with the back of the spade. As soon as the plants come up a mixture of equal parts of plaster and ashes should be sown thereon, so as to dust the plants well. This operation should be repeated daily, each morning, until the plants get into the rough leaf. When the plants begin to belly, they must be thinned out so as to stand about 8 inches apart, and the weeds kept down until the leaves shade the ground. Thus treated, a bed of early turnips may be secured for table and market—and of *this*, those who live near a market, may be assured, that they will find ready sale and good prices, as but few persons raise turnips thus early for market.

*Cabbage Plants.*—Those who have been so provident as to raise Cabbage plants in a hot bed, should seize the occasion of preparing a bed to set them out in, so soon as the frost is out of the ground.—Cabbages are gross feeders, therefore, require a good deal of strong manure. To prepare plants raised in hot beds for transplantation, it is necessary to raise up the lights for several days, to enure them to the weather before setting them out. To protect them from the cut-worm, prepare a paste-like mixture, of *soot* and *flour of sulphur*, moistened and brought to the proper consistence, by pouring in small quantities of boiling water at a time. When the mixture is thus brought to the consistence of paste, and suffered to cool, as you are about to set the plants out, dip the roots and stem of each plant into it up to the leaves, when it must be inserted in the ground. This mixture will not only protect the plants from the attack of the cut-worm, but serve as an active manure to give them an early start in their growth, a thing of great importance as all gardeners well know.

*Early Beets, Parsnips and Carrots.*—We advise that a bed in each garden should be appropriated to secure an early supply of these excellent table roots. As the same soil suits each, one bed would serve for a supply. The manure to be used should be thoroughly rotted: the bed dug deeply and well raked and laid off into drills 2½ feet apart, which should be sown as thinly as possible, and covered up about 2 inches deep. The plants up, the beets should be thinned out to stand about 8 inches apart, the Parsnips 6 inches apart and the Carrots 4 inches apart. The weeds must be cleaned out and the earth loosened two or three times before the crop is laid by.

*Beans.*—The *Lisbon*, *Mazagan* and *Windsor* beans may be planted as soon as the frost is out of the ground. Beans delight best in a clayey, or clayey mould, soil, which should be moderately manured, dug with care and thoroughly raked.

*Spinach.*—This excellent vegetable should be sown as early as the ground can be got in good order, and in order to force its growth, plentiful manuring, as also thorough pulverization is necessary.

*Radishes and Lettuce.*—As soon as the frost is out of the ground Radishes and Lettuce seed may be sown in the open ground,—to secure continuous supplies it is best to sow the seed at intervals of ten or twelve days. When the lettuce plants are of sufficient size they should be taken up and set out to head and form into loaf.

*Brussels Sprouts.*—To secure an early supply of sprouts for the table, prepare a bed and sow with Brussels Sprouts. After sowing, which should be done thinly, they require no labor to bring them to perfection. The bed should be manured and prepared as directed for early turnips. Next to cabbage sprouts, they rank next, yield most abundantly, and should have a place in every kitchen garden.

*Asparagus Beds.*—If you did not do so last fall, you should dress your Asparagus beds without delay.—Prepare a compost of 9 parts well rotted stable manure and 1 part ashes, spread this about an inch thick between the rows of asparagus, fork it in well, then rake the bed well and finish by sowing salt over it so as to whiten the whole surface of the ground.

*Culinary and Medicinal Herbs*, of all kinds may now be sown or planted out. No gentleman should consider his garden as complete in its appointments who has not growing in it *Thyme, Sage, Summer and Winter Savory, Sweet Marjoram, Balm, Mint, Lavender, Bergamot, Hoarhound, Chamomile, Catnip, Rhue, Parsley, Chalots, Chives, Garlic, Leeks, &c.*

*Salsify.*—The seed of this excellent culinary root cannot be sown too early this month.

*Horse Radish.*—If you have not a bed of this most healthful and palatable root, prepare a bed on some moist border and plant one. It is certainly one of the best condiments used on the dinner table—and is besides one of the very best substances to make a *syrup* of for colds and coughs.

*Onions.*—Prepare a bed by manuring and raking thoroughly. Then make drills 1 foot apart and drop onion seed therein 4 inches apart. When they come up keep the ground clean with the hoe. Be careful not to hill up to the root of the onion, and you will be sure to have a good crop of well sized onions by August. When the tops get 10 or 12 inches high bend them down, which will contribute to facilitate the growth of the root. Sow your seed as early as possible.

*Rhubarb or Pie Plant.*—Get a few dozen plants of this delightful vegetable, and set them out in a well manured and pulverized loamy bed. Set the plants out in rows 2 feet wide, the plants 1 foot asunder, keep the bed clean, and 3 dozen plants will furnish the material for pies for a family, nearly equal in flavor to those made from the Gooseberry. A *syrup* made from the stalk of the Rhubarb is said to be a cure for the summer complaint of children,—and as these little sufferers are so subject to this disease, we should think that every parent should provide his garden with it, in order that the remedy may always be at hand. We need not prompt *mothers* to see that the garden is thus provided—for there is *that* in a woman's heart, which impels her on to the discharge of her duty, stronger than all the arguments which eloquence can urge—we need not say the feeling which thus impels her, is a mother's love—a sentiment purer than snow, and stronger than death.

*Artichokes.*—The seeds of this vegetable should be sown as early as possible. The soil a deep loam, not too much exposed to the sun nor too dry.

*Red Peppers.*—The seed of the various kinds of Peppers should now be sown.

*Gooseberries, Currants and Raspberries.*—Dig round and trim these, and it would be well to dig in a little well rotted manure about the roots.

*Grape Vines.*—Dig around your grape vines, taking care to dig in about the roots a compost formed of 5 parts well rotted manure, 1 part ashes, 1 part bone dust or horn shavings and 1 part lime. Through the early part of the season it would be well to give the vine itself occasional sprinklings of soap suds as also the roots.

*Fruit and Ornamental Trees* should be planted as early as possible—and, may be pruned any time.

*Strawberry Beds.*—Put some good rich, well rotted manure between the rows, about an inch deep, fork it in, then rake and lay fresh straw between the rows, to answer the double purpose of keeping the fruit from being gritty, and maintaining moisture in the earth,—the latter being a point of great moment to their fruiting well. When the vines come into bloom, if the weather should be dry, have them carefully watered, by applying the nozzle of the watering pot low down next the roots, so as not to injure the flowers of the plant. While the berry is forming, it is all important that moisture should be preserved to the roots.

*Annual Flowers.*—The seeds of annual flowers may be sown, and all bulbous roots set out, except the Dahlia.

*Fig Trees*, may be either pruned or set out.

Thus we close our memoranda for the month—wishing you all possible success in your horticultural labors—renewed enterprise in so interesting an employment—we will make our bow by soliciting the favor of your ☞*getting at least one of your neighbors to subscribe for the American Farmer.*☜

---

Culture of Beans in England.—We copy the following from Mr. Colman's last report on European Agriculture.

Beans are of several kinds. The first division is into garden and field beans. Of garden beans very few are cultivated. String beans, otherwise called *French* beans are common enough; but I have not met with our finest kinds of shell beans, such as the cranberry, the pole, kidney or caseknife bean, and, above all, that rich and delicious vegetable, the Lima bean. If they are known in England, it has not been my fortune to meet with them, either in the markets or at private tables.

Beans may be considered, in England, as a most important field crop, and are principally used for the feeding of horses, to which they are given, usually, broken and mixed with oats,—a quart of beans being considered as quite equal to two quarts of oats,—or with cut hay and chaff. They are likewise used in fatting swine; but they are considered to give too much hardness to the pork, excepting when it is to be used for bacon. They are deemed valuable likewise for fatting oxen, and increase much the milk of cows. They may be said to take the place with the English which Indian corn takes with us. Some quantity of beans are mixed with new wheat to be ground, as the millers say "that soft wheat will not grind well without them, and, as one shrewdly observes, they take care that in this matter there shall be no deficiency." I have eaten, in Scotland, bread made with a large proportion of bean flour, but I cannot say with much relish. The nutritive qualities of beans, as compared with wheat, are as sixty-eight to seventy eight per cent. The ordinary weight of a bushel of beans is sixty six pounds.

There are several kinds cultivated, which are known by different names; but the kind most approved is a small, round bean, of a dark colour, and of nearly twice the size of a marrowfat pea. A well-cultivated field of beans is, in its early stages, a beautiful object. The land most suited to beans is a strong, rich loam, and a clay soil is congenial to them. Nearly seventy bushels have been obtained from an acre; sixty is a large crop: ordinarily, however, they do not exceed thirty bushels. Here they are sown early,—in February or early in March,—and ripen late. They are sometimes sown broadcast, and large crops have been obtained in this way; but it is not recommended, from the difficulty of keeping the crop clean, which is of the highest importance, where a wheat crop is to follow. They are usually drilled ten or twelve inches asunder, and the intervals hoed; and sometimes two feet or two feet and a half apart, and then carefully cultivated between the rows—The land, in such case, is commonly highly manured, the manure being rotten barn manure, spread and ploughed in; and, being kept as clean from weeds as possible, there is a fine preparation for wheat. In this way, wheat and beans are made to alternate on the same land for years, with advantage; though the land should be strong, to bear so severe usage, and the bean crop must be liberally manured. The rotation often adopted is turnips, barley, clover, beans, wheat; where the land is very rich, it is, turnips, barley, clover, oats, beans, wheat, beans. The quantity of seed sown by drill for beans is two and a half and three bushels. Peas are sometimes sown with beans for a green crop, for the purpose of soiling; in which case, three bushels of beans and two of peas are sown; and this produces a nutritious and well-relished food for cattle and for pigs. Of crops which ripen their seeds few are less exhausting to the soil than beans. Beans, at harvest, are shocked in the field until dry, and then placed in stack to be, after a while, threshed out, either by flail or by machine. The fodder, cut up with other fodder, in the spring of the year, is eaten by stock. Caution is advised in giving horses new beans, as they are very likely to founder them. The crop of beans here is certainly most valuable, in a climate where Indian corn will not grow; but it seems, in all respects, much inferior to that inestimable and useful product, the value of which, in my estimation, and the more I see of foreign husbandry, is continually rising. The small white, kidney or round bean, so common with us, and so much eaten in some parts of the country, is not, within my observation, grown or used here.

I tried the cultivation of English horse-beans more than once in the United States; but they were always, in the time of flowering, destroyed by a small, black fly, which they seemed to attract in an extraordinary degree, and which stripped the stems completely of their foliage.

---

Culture of the Olive.—In a late address before the Agricultural Society of South Carolina, the Hon. Mitchell King warmly advocated the introduction of the Olive in the rural economy of that State. He read a very interesting letter from J. Hamilton Coupe, of St. Simon's Island, from which the following passage is extracted:

"We have suceeded perfectly in picking the Olive and in making from it the finest oil I ever tasted. This season I expect to make several hundred bottles of oil; and if I am not disappointed by hurricane, I hope this winter to submit a sample to your critical judgment. Having now about 250 trees of various ages, and intending to increase them, I hope in a few years to be able to test conclusively the question of the Olive culture in Georgia. The experiment will not be a costly one, as the ground occupied by Olives is cultivated at the same time in other crops."

The olive has been successfully cultivated in Louisiana, the first colonists of which State introduced with it also the vine of champagne; all have however disappeared before the more profitable crops of sugar and cotton.

Even as far Northward as the Eastern shore of Virginia, the Pomegranate, thrives and the Olive with very slight care will live and bear fruit.

## AGRICULTURAL CHEMISTRY.

The following specimens of soil, have been deposited in St. John's College, by the Hon. DAVID W. NAILL, of the Senate of Maryland. They are enclosed in neat tin boxes, for Cabinet use. They are from Sam's creek, Frederick county.

*No. 1.—Analysis.*

| | |
|---|---|
| Silica and fine insoluble matter, | 67.0 |
| Alumina, | 6.0 |
| Oxide of Iron, | 7.5 |
| Oxide of Manganese, | .3 |
| Potash and Soda with Silica, | 1.0 |
| Humus soluble in alkali, | 2.2 |
| Saline matter, | .5 |
| Destructible matter at red-heat, | 8.0 |
| Water at temperature of 175°, | 5.5 |
| Loss, | 2.0 |
| | 100.0 |

*Productive Power.*

Wheat, 30 to 40 bushels.
Corn, without manure in an adverse season, (1840,) 70 bushels.
Too rich for Grass.

*No. 2.—Analysis.*

| | |
|---|---|
| Silica and fine insoluble matter, | 71.0 |
| Alumina, | 3.2 |
| Oxide of Iron, | 9.0 |
| Phosphate of Magnesia and Lime, | .3 |
| Destructible matter at red-heat, | 9.0 |
| Saline matter, | 1.0 |
| Water at temperature 175°, | 4.0 |
| Loss | 2.5 |
| | 100.0 |

*Productive Power.*

Wheat, 25 to 30 bushels.
Corn, without manure, in a good season, (1839,72½ bushels.

*No. 3.—Analysis.*

| | |
|---|---|
| Silica and fine soluble matter, | 78.0 |
| Alumina, | 2.2 |
| Oxide of Iron, | 8.0 |
| Phosphate of Magnesia, | .4 |
| Destructible matter, at red-heat, | 5. |
| Saline matter, | 2.4 |
| Water, at 175°, | 4. |
| | 100.0 |

*Productive Power.*

Wheat, 20 to 25 bushels.
Corn, without manure, (in 1842,) 70 bushels.
Other crops, in proportion.

Contributions of similar specimens of *soils, clays*, and *marls*, will be thankfully received at the College, where Agricultural Chemistry is taught by Lectures; and members of the Legislature will promote this interest in the State, by aiding to make the collection as complete and correct as possible. A cheap and neat arrangement, is to put the specimens in clear glass bottles of small size, which will exhibit the earths well, to the eye; and the labels may show not only the *locality* of each, but the *analysis* and *average rate of production*. Thus arranged, each specimen will indicate where any element is deficient, and where any is in excess; and suggest the proper process for improvement. The Alumni of the College, who may visit Annapolis, at the approaching Commencement, would do well to bear this in mind, and to retain, for this use, any Mineralogical or Geological specimens which may come to their knowledge.

HAY IN ENGLAND, is scarcely ever put in barns. It keeps well in stacks, made up as they are in the neatest manner, and carefully thatched with straw. Nothing can be more beautiful and workmanlike than the manner in which these are made up; and for hay, the long stacks are decidedly preferable to those of a round form, as it is cut down for use, in such case to more advantage. The formation of a stack, which is often done by women, is a work of much skill, which is the fruit only of practice; the thatching of a stack in the best manner requires both art and experience, and there are men who make it a profession. When well executed, the hay is for years impervious to wet. During the formation of the stack,—which, when intended to be large, must sometimes wait for several days the progress of hay-making,—the most careful farmers have a large tarpaulin or canvass covering, to suspend upon poles over the stack, in order to protect it from rain. I refer to those minute circumstances, to illustrate the extreme carefulness with which many of the operations of husbandry are here conducted. When the hay is to be used, a whole stack is never removed to the stables at once, but is carefully cut down as a loaf of bread might be cut, and always done up and bound in trusses, intended to be of fifty-six pounds each, and in that way carried to be distributed to the animals. This requires some extra labor; but the farmers find their accounts in it. How different this is from the careless and wasteful manner in which things are managed with us, where I have seen horses and oxen standing knee deep in the litter of the very best hay, which has fallen and been tossed out of the mangers! The consequence of this extraordinary painstaking is, the most economical management of their products. The animals have a regular allowance, and are not at one time starved; and not a handful wasted. I have never been quite able to understand the old proverb, that "a penny saved is twopence earned;" but I quite understand the folly of wasting that which is the product of severe toil and expense, and the immorality of throwing away that which the bounty of Heaven bestows for the comfort and sustenance of man or beast. I once heard a minister say, in his sermon, that some persons were charitable in spots I think, in a similar sense, it may be said that some persons are economical in spots, and that many persons who will chaffer and haggle half a day to save a sixpence in the price of an article, will often throw away shillings in their neglectful or wasteful use of it.—*Colman's European Agriculture.*

### TO MAKE SOFT SOAP.

Take 20 pounds of potass and dissolve it in 25 gallons cold soft water, (an Iron kettle is the best to put it in) It will take 5 or 6 days to dissolve, unless the weather is perfectly warm. When dissolved, take 20 pounds of clean grease, or rough grease that will make that weight, and cleanse it with white ley, then strain it through a sieve or cullender in the soap barrel, and add the potash ley, being careful not to disturb the sediment; then soak the sediment of the potash with a few gallons more soft water, and pour it into the barrel, so as to save all the strength of the potash.

In this way I have never been over three days in making a barrel of soap; and as to its quality I should be proud to exhibit it before any lady in the State.

In regard to the best time for making soap the month of April is as good as any; or just before hot weather commences; as all rough grease must then be looked after, or the flies will take the matter into their hands.

## SUBSOIL PLOWING—BOTTOM LANDS.

Mr. Bateham :—Is it a fact, as I heard stated at Columbus, that subsoil plowing does no manner of good to our alluvial bottom lands? If so, it should be generally known; and the sooner the better. Several of my neighbors contemplate purchasing subsoil plows for that description of lands. I may have commited an error in recommending the practice. I never used the subsoil plow; but from the results of very deep plowing, experiments, and observations, I had come to the conclusion that it would be beneficial on almost every description of soils, provided the land is not too wet.

It is evident that the pressure of the plow, running at a uniform depth, for many years, forms a hard stratum, almost impervious to water, and impenetrable to the roots of plants. When breaking a clover ley a short time since, the ground wet and loamy, with water standing on numerous portions, shortly after heavy, protracted rains, I found the earth quite hard and dry at the depth of 7 to 9 inches, or just below where the plow usually ran.

A neighbor, who pays little attention to agricultural science, on renting a farm adjoining me, complained that the ground was so hard, at a depth without going entirely beneath that hard stratum, the former being too shallow, and the latter too hard on his team. I explained the difficulty; the original proprietor had skinned about 3 or 4 inches deep for some 25 years, forming a complete hard-pan.

Mr. J. Buffington, an extensive farmer, and quite an observing man tells me that when using the bull-tongue for a make-shift subsoil plow, he had to put a heavy weight on the plow to make it penetrate the hard stratum below the furrow of the large plow. His land, as you know, is an alluvial deposit, abounding in vegetable matter, rich loam, and sand—one of the deepest and richest alluvion soils on the Ohio river. The result of his experiment with the bull-tongue was favorable, giving a better yield than the balance of the field, where the large plow only was used.

When preparing a piece of pond land for a premium corn crop, a few years ago, I had occasion to fill up a temporary ditch that had been made the year previous, and it so hapened that a row of corn was planted directly over the ditch, which gave it a decided advantage over any other row in the field—the entire product being at the rate of 77 bushels per acre—soil 18 inches deep, rich muck, or vegetable deposit—clay subsoil.

The Reverend James Kelly, of this county, when digging a well, hauled sand from near the bottom, and filled up an old well that had been partially dug in his field by the original proprietor, after which he plowed the field, and planted corn. The hills of corn planted in the pure sand, or nearly so, and directly over the old well, gave an extraordinary yield, producing ears 22 inches in length, at least 6 inches longer than I ever saw, and 4 longer than I ever heard or read of. Query.—Was this extraordinary result caused by some mineral or other nutritive qualities contained in that sand that came from many feet below the surface, or was it the action of the rains and atmosphere, dissolving and rendering the sand soluble, that it could be readily taken up by plants; or did the unusual depth of loose earth induce the roots of the corn to extend down to such a depth as to afford a constant and uniform supply of food and moisture, even temperature, and a great variety of dainties to feast upon?

Do not these results, after making liberal allowance for the fact that similar causes produce different effects under different circumstances, indicate that subsoiling will be beneficial even to our bottom lands, Mr. Thomas to the contrary notwithstanding?

H. N. GILLET.

*Quaker Bottom, Lawrence Co. O., 1847.—Ohio Cult.*

---

*From the First Report of the Ohio Board of Agriculture.*

*Need of Education.*—"The public mind of Highland county is not prepared for an earnest, zealous, energetic system of efforts to improve her agriculture. One suggestion naturally arises out of this fact. The great object which the friends of agriculture desire to attain, cannot be effectually compassed until means adequate to the end shall be employed to produce it. In vain shall you address the man of grey hairs, who, having always ploughed so, has yet harvested wheat, and who, having never manured, has yet gathered corn. But place his son and daughter in the district school, under a teacher of ordinary intelligence, who, having studied, shall teach, among other things, a suitable course of rural economy and agricultural science—to them, thus trained, rational experiment and accumulations of knowledge in agriculture will become a necessity, and intercommunication of results and opinions a delight. To the popular education, then, let the energies of good men be directed. The district school system of Ohio is perishing by the most cruel neglect. It were capable of all that is elevating and excellent, were it made to improve with the growth of the people in numbers and wealth. But it stands, while all else advances; and the youth crying for bread, receive a stone! Vast and illimitable are the sources of national greatness lying ready to be evolved in the untried depths of the juvenile mind. To this level must statesmen sink their shafts, before the clear waters of general intelligence will gush abundantly."—[*by President of Ag. Society.*

*Worthy of imitation:*—The President of the Miami county society says: "The society being organized at so late a period, it was deemed inexpedient to have an exhibition for awarding premiums the present year. This resolution was made in view of the chief benefits sought to be attained by the organization of agricultural societies. These advantages are to be found, not so much in the production of extraordinary results, as in the establishment or discovery of means and processes by which a given result may be attained with the least amount of expenditure, whether it be of labor or of capital. SKILL and INTELLIGENCE are to be encouraged, rather than a blind reliance upon chance and the operations of nature, without these aids which she requires at the hands of man, if he would enjoy those bounties which she is capable of bestowing. In short, we believe the premium should be awarded to the MAN, rather than the bullock or the porker brought for exhibition. The society have appropriated the sum of one hundred dollars for the purchase of BOOKS to form the commencement of an agricultural society. The funds in the treasury, including appropriations, amount to $200."

"*Hussey's Reaping Machine*, worked by horse power was introduced into this county the past harvest, and some two or three hundred acres of wheat cut with it. It cuts the grain without waste, and leaves a short stubble. It employs nine men and four horses to even work it, and cuts upon an average 12 or 15 acres per day. The man who sits on the machine, to pass the grain off the platform, works very hard, and to great disadvantage, from the position in which he is obliged to sit. Machines are now being made in Urbana,

our county town, to order, by a Machinist who promises to make them that they will pass off the grain to the binders for any size sheaf that may be desired, thus superseding the necessity of a man on the machine for that purpose. Improved threshing machines, whereby the grain is thrashed and cleaned by one operation, at the same cost per bushel as was formerly paid for thrashing alone, are now in pretty general use in this county. The wheat-drill was used by several of our farmers last fall, for the first time. The great advantage of this mode of seeding is said to be in the yield, of which I cannot speak."

[*By S. Keener, Esq.*]

The President having suggested to the Legislature the propriety and necessity of creating a permanent fund for the purpose of defraying the expenses of the Board, the Legislature have promptly responded thereto, by the passage of a Law in accordance therewith.

---

SWEENEY IN HORSES.—A Mr. Denning of Ohio, gives the following cure for this Disease: lift the skin from the centre of the wasted part of the shoulder with the thumb and forefinger, in which make an incision with a sharp pointed knife sufficiently large to permit you to thrust in your forefinger, and having passed your finger around in every direction between the skin and wasted flesh; then lifting up the skin as before, insert a goose quill, fill the space with air thus torn loose from the flesh, and with the help of an assistant who stands ready with a small, strong linen cord, tie up the wound tightly so as to retain all the air, and in two weeks the horse will be fit for active service.

The editor of the Ohio Cultivator thinks the principle upon which the foregoing remedy effects the cure, is the same as that of Dr. Felix, published in that paper, viz. the prduction of *inflammation*, thereby causing a greater flow of blood and nourishment to the muscles that have become wasted. We are inclined to think Dr. F.'s plan the most certain and effectual.

---

Further evidence in support of the great discovery in COW-OLOGY:—

PATERSON, N. J. December 19, 1846.

*Dear Sir:* I have read, with great satisfaction, *M. Guenon's* work on Milch Cows, by which one can judge by certain infallible signs the Milking qualities of the animal. I have compared the marks he gives for his first grade Flanders Cow, and find they correspond with the escutcheon of my favorite *Devon Cow Ellen*, that has taken the first premiums at the two last cattle shows of the American institute. My farmer has great faith in M. Guenon's work, and so has one of my neighbors, a knowing Scotch milk-man who keeps fifty cows. He says that after careful examination he places confidence in these marks, and they will govern him in his future purchases.

I return you my sincere thanks for giving to us farmers this valuable treatise of M. Guenon's. I shall hereafter make my selection of the calves I will raise from my choice stocks from the marks given by this author. I think every farmer should own this work. With regard, yours, &c.

ROSWELL L. COLT.

To the Editor of The Farmer's Library.

[*This work to be had at the office of the Amer. Farmer.*]

*From the Savannah Republican.*

## THE COTTON CATERPILLAR.

We cannot too earnestly recommend to all those engaged in the culture of cotton, the letter of the Hon. THOS. SPALDING, which we publish this morning. It contains strong internal evidence that he has hit upon the only true method of arresting the scourge which has so often in these latter years blighted the hopes of our planters. If this insect still lingers about the cotton fields, ready to awake when spring advances, and commence the work of another season's ravages, it is all important for planters to know it, that they may on their part put in operation a regular system of destruction. It is of little use to plant the seed, if the attacks of the caterpillar are to be renewed each year. If a night of the most intense cold, such as we had two or three weeks since, does not destroy these insects, it is too clear that intense heat must do the work.

*Sapelo Island, Jan. 22, 1847.*

*Gentlemen:*—Some letters have appeared in the newspapers respecting the caterpillar surviving the winter, either in the butterfly or in the cocoon, or chrysalis state. The sole objection I can have to such letters is, that they may lull the planter into repose, and prevent him from using all the vigilance he would use in destroying the caterpillar by fire, either in its egg, in its chrysal, or in its butterfly condition.

While in Savannah recently, my black managers found in the grass, along the roads and around the fields, many butterflies of the caterpillar species. My daughter's driver found suspended to the grass, in his fields, several of the cocoons or chrysalis quite alive, which he brought to the house, not knowing I was away.

These are facts I give, because I wish every planter, from here to Texas to burn up and clear around his fields, as far as his convenience will permit.

That it should have been doubted for a moment that the caterpillar might survive the winter, is only wonderful when all analogy would have confirmed the fact.

The silk-worm lays its eggs in May, these eggs are preserved on paper or cloth until January, and then to prevent too early hatching, placed in an Ice house —no cold injures them.

The cut-worm, so destructive to our Indian corn crops from Maine to Texas, does its work of ruin from April to June, according to latitude. When its work of mischief is over, it too, becomes a chrysal; buries itself in the earth, not more than an inch deep. Many of them come out as flies, but many remain the year round in this condition, to be exposed by the plough or hoe in the winter or spring, waiting to the search of birds. And it is to this gleaning of the birds that we often owe the preservation of our Indian corn crop.

After fifty-three years of cotton culture, and after more losses than any other planter in the United States has sustained by caterpillar: I believe the last hope of staying the plague, must be found in fire. First clearing up and burning around our fields—fires lighted up, in every field, as far as possible, of every dark night, as soon as the caterpillar make their appearance in any part of the country, however distant; for they come truly like a thief in the night, and they fly like the candle moth, (which they greatly resemble,) to the light. A single moth destroyed in the spring by fire, may stay the destruction of millions before the month of August or September.

Respectfully, your very ob't serv't.,

THOS. SPALDING.

THE NEWS AND THE MARKET.—The N. Y. Express of Monday says—

The news by the Cambria is of the greatest interest, and will produce as much sensation in the produce market as the mail by the Hibernia or the Sarah Sands. The advances noticed by these ships were not more marked than is the decline by the present mail. The stocks of grain now at Liverpool are very large, and the tendency of prices is downward, from the fact that shipments on the way, and to be made, will keep the stock from decreasing at Liverpool. Cotton is dull and on the decline, which is the natural consequence of an advance in food. Ashes are a little higher, but no extended sales are noticed. All kinds of salted provisions are higher, but of these we have not our usual large stock, and the advance will not be so much in our favor.

The price of flour, in all probability, has, for this year, reached its height; and we can only look for another such a demand when the deficiencies of the next harvest are known. The high price of grain has now shown our capacity to produce, and has put in motion to our seaboard a quantity never before known. The amount far exceds our capacity to transport across the water; and it is most likely that we shall soon have at the seaboard the amount of produce that will keep prices down. With another crop like that of 1846, for productiveness, the amount we shall have to sell is hardly to be estimated. The late and the present price will stimulate the production of breadstuffs to an enormous extent, above our usual large annual increase, and we may have a supply not easly taken care of.

The character of the news by the Cambria is such that the next mail will be looked for with an interest greater than even the last. Much of the late business in produce has been speculative, and the returns, of course, looked for with more interest than the details of legitimate business operations.

THE OTHER SIDE.—The New York Herald of Monday says—

The advance in the rate of interest, from 3½ to 4 per cent., by the Bank of England, is intended, no doubt, to check speculation in breadstuffs; but it is a question whether it will have the effect aimed at. It is our impression that, if it has any, it will be but temporary. *The famine, in Europe is so generally extended, the scarcity of food so great, the sources of supply on the Continent so limited, that we cannot conceive it possible to prevent a farther rise in breadstuffs.* The first effect of the advance in the rate of interest was a great depression in the various markets; but they rallied, as will be seen by the reports in our foreign news, and were steadily improving.

The demand for bread comes from a source which cannot be affected by any movement in financial circles. A demand for food for immediate consumption can only be satisfied by furnishing supplies; and those supplies must be forthcoming, no matter what prices may be.

---

TOBACCO.—According to official returns, Great Britain consumed in 1846 twenty-six millions five hundred and fifty-seven thousand one hundred and forty-three pounds of tobacco, which at three shillings sterling, or sixty-seven cents per pound duty, put into her treasury nearly eighteen millions of dollars. The stock of tobacco on hand in the kingdom on the first of January, 1847, reached the large quantity of 59,255 hhds., which when consumed, will put into the British treasury the sum of about *forty-seven millions of dollars.*

THE TOBACCO CROP.—Lyford's Comercial Journal, of Saturday, under the head of tobacco, in its regular review of the market, says :—"In our observations touching the crops of Maryland and Ohio for 1846, published in our annual review of the market in the Journal of the 9th inst., we remarked that it had been ascertained that each would fall considerably short of an average one: how far short that of Maryland will be, we have not heard a conjecture; but that of Ohio will not, it is thought, exceed 15,000 hhds., (and of that proportion not over 1000 hhds. of colory) while the crop of 1845 reached nearly 29,000. The stock of Maryland and Ohio remaining on hand at the close of last year, as we have before published, amounted to 32,722 hhds; and since then there have been exported something over 1000 hhds.; so that, including what is already on shipboard and not cleared, and that which has been purchased, there is probably now in shippers' hands about 15,000 hhds., 8000 of which are Ohio and 7000 Maryland—and the remaining 16,000 are still in the hands of factors."

---

*Farmers' College, Hamilton County.*—"As a ground of future hope of agricultural improvement, we are happy to refer to the fact that there is now being completed, at Carey's Academy, at Pleasant Hill, six miles from Cincinnati, on the Mount Pleasant turnpike, a spendid building, with the title of "Farmers College of Hamilton county," as a foundation of a system of education suited to the wants of the sons of farmers generally. The funds are raised by stock subscription of shares of $30 each. Though not a part of this society's operations, yet, the society feel a deep interest in the scheme, and individuals of the society are aiding in the work."—*Ohio Report.*

---

*Remedy for the Bots.*—Mix a quart of new milk and half a pint of molasses, well together, drench the horse with this on an empty stomach, then give him moderate exercise till it operates, when it will be found that his discharges will be well filled with this troublesome worm. If there be no molasses at command the same quantity of honey, or half a pound of sugar will answer fully as well.

---

*Recipe for making Artificial Guano.*—Take 7 bushels of bone dust, 100 lbs. sulphate of ammonia, 5 lbs. pearl ash, 100 lbs. common salt, 11 lbs. of the dry sulphate of soda and 2 bushels of plaster; mix the whole together, leave it in pile for two weeks, then turn it over, and you will have a very good substitute for guano, and a sufficient quantity to manure two acres of ground.

---

HINTS ABOUT FOOD.—Roast meat contains nearly double the nourishment of boiled, but boiled meat is better adapted to weak digestion. Frying is one of the very worst methods of dressing food, as broiling is one of the best. Baked meat has a strong flavor, is deprived of some of its nutritious qualities, and is difficult of digestion. Spices, sauces, and melted butter, should never be used by an invalid.

---

PRESERVING BACON.—I observe it is recommended to dust bacon with black pepper, before putting up to smoke. We rub the fleshy parts of our hams with *red* pepper before salting—about a tea-spoonful to each ham, and for the last 20 years have not found it necessary to use any more care to keep our hams from flies than we do our bread.

## FLORICULTURAL.

### GARDEN WORK FOR MARCH.

Prepared for the American Farmer,

BY SAMUEL FEAST, FLORIST.

*Camellias* will now be commencing their new growth, and should have plenty of water at the roots, and frequent syringing with clear water over the foliage.

*Pelargoniums* will require plenty of water and air this month—re-pot such as were not attended to last month. Fumigate with tobacco whenever the green fly appears.

*Azaleas* now blooming should have plenty of water. Re-pot such as need it, as soon as the bloom is over.

*Cactuses* should now have a little more water.

*Verbenas* should be re-potted, if not already done.

*Roses* will now be advancing rapidly. Give plenty of air, and water whenever the soil appears dry. Attend to fumiga ion upon the first appearance of the *green-fly*.

*Dahlias*, (if watered for early bloom) should be potted, and placed on a hot bed.

*Amaryllis* should be re-potted into a light rich soil.

*Tender Annual Flower Seeds* should be sown as directed last month.

*Hardy Annuals* may be sown in the open ground as soon as the frost is over.

*Hyacinth and Tulip* beds may be uncovered by the middle of the month.

Plants in frames should have plenty of air in fine weather.

*Roses, Honey-suckles, &c.* should be trimmed and trained, preparatory to the dressing of the borders, the latter part of the month.

### METEOROLOGICAL TABLE, FROM 28TH JANUARY, TO THE 25TH FEBRUARY.

*Kept at Schellman Hall, near Sykesville, Carroll co. Md. Taken at 6 o'clock, a. m., 2 o'clock, noon, and at 6 o'clock, p.m.*

| | Wind. | | | Temperature | | | Remarks. |
|---|---|---|---|---|---|---|---|
| 28 | W | W | W | 18 | 36 | 30 | Clear |
| 29 | E | SE | SW | 27 | 34 | 41 | Hail Sleet Rain 1-2 inch |
| 30 | W | W | W | 37 | 40 | 43 | Cloudy |
| 31 | W | W | W | 23 | 43 | 33 | Clear Cloudy |
| 1 | W | SW | SW | 22 | 43 | 29 | Snow 1-2 inch Clear |
| 2 | SE | SE | SE | 27 | 33 | 34 | Fog |
| 3 | SW | W | W | 48 | 47 | 37 | Rain 2 in. storm of wind |
| 4 | W | W | W | 18 | 29 | 29 | Clear |
| 5 | W | W | W | 21 | 35 | 31 | Clear |
| 6 | W | W | W | 24 | 39 | 34 | Clear |
| 7 | W | S | SW | 24 | 43 | 37 | Clear Rain |
| 8 | SW | SW | SW | 31 | 46 | 41 | Clear |
| 9 | SW | SW | SW | 39 | 54 | 46 | Clear Cloudy |
| 10 | W | NE | W | 34 | 37 | 34 | Snow 1-2 in. Cloudy |
| 11 | W | W | W | 28 | 34 | 30 | Clear, Snow, Clear |
| 12 | W | W | W | 25 | 34 | 27 | Cloudy |
| 13 | W | W | W | 19 | 33 | 29 | Cloudy, Snow, Clear |
| 14 | W | W | SW | 22 | 39 | 35 | Clear |
| 15 | W | S | S | 31 | 54 | 48 | Clear |
| 16 | NE | NE | NE | 32 | 29 | 29 | Hail |
| 17 | NW | S | NE | 33 | 52 | 47 | Rain, Clear, Cloudy |
| 18 | SW | E | NE | 36 | 38 | 34 | Cloudy Rain |
| 19 | E | E | E | 33 | 39 | 39 | Fog Cloudy |
| 20 | E | SE | SE | 33 | 40 | 36 | do do |
| 21 | SE | SE | SE | 34 | 36 | 38 | Fine Rain 1-2 inch |
| 22 | E | NW | NW | 30 | 38 | 34 | Cloudy, Snow 1-4 in. Cloudy |
| 23 | NW | NW | NW | 24 | 34 | 29 | Clear |
| 24 | NW | W | E | 18 | 34 | 25 | Clear Cloudy |
| 25 | NE | SE | | 27 | 35 | | Snow 2 inches, Cloudy |

American wheat 9½ bushels, of 60 pounds to the bushel, equal to the English quarter.

FOREIGN MARKETS—By the Cambria, from Liverpool, Feb 3—

RICE.—1000 casks Carolina of very fair description at 30s 6d to 31s per cwt.

SUGAR.—An extensive business has been done since the 18th ult. in all descriptions, and prices have gradually risen 3s to 5s per cwt above former rates; but within the last few days a decline has taken place both in demand and price, owing to the measure not having passed to admit sugar into breweries and distilleries. The sales of the month for this port have been very extensive.

TOBACCO—The sales this month are 1765 hhds. The only alteration we can notice is with the middling class of strips, which are somewhat lower than at the end of the year.

| | 1846. Hhds. | 1845. Hhds. |
|---|---|---|
| Tobacco in Liverpool, 31st December, | 19,962 | 17.302 |
| Imported in January, 1847 and 1846, | 1,000 | 1,691 |
| | 20 962 | 18.993 |
| Stock, 30th Jan., 1847, | 19.910 | |
| Against 31st Jan., 1846, | 18.142 | |

TOBACCO CONTRACTS IN FRANCE.

A few days ago the large tobacco contracts advertised by the Government were entered into. The supply of 1,800,000 kilos of Maryland, being taken by M. Pescatore, the first at 86f 33c, the later at 163½f. The supply of 2,400,000 kiols of different descriptions of Maryland was contracted for by M de Rothschild at 103f 18c. The conveyance of these vast quantities of Tobacco from the United States to France gave rise to a discussion between the American Minister Mr. King, and the French Government. The latter at first laid down the condition that the contractors should be bound to bring the tobacco to France in French vessels, but eventually consented to abandon it, in compliance with the remonstrances of Mr. King. Had it been persisted in, it would not only have been a heavy loss to American shipping, but a violation of the Navigation Treaty of 1822.

### BALTIMORE MARKET, February 24.

The arrival of the steamer Cambria, from England, has caused considerable excitement in the Flour and Grain market. The previous arrival of the steamer Sarah Sands, bringing intelligence of the rise in England, had carried flour up to $6,25 a 6.50, and grain in proportion, and much anxiety was felt for later advices, with the expectation that a still further advance would take place. The shock consequently was great, when it was announced that a backward movement had been made, which was immediately succeeded by a decline here of 37 to 50 cents per bbl. We cannot but believe that this decline will be but temporary, for, so far from any permanent relief being experienced by the starving millions of Europe, the accounts we have from France and the continent, shews very conclusively, to our minds, that a market will be constantly afforded for all our breadstuffs at a high figure. We think the fall announced by the Cambria was the effect of speculation, and the anticipation of results from certain measures introduced into the British Parliament, together with an increase in the rates of interest by the Bank of England, to keep down speculation in

breadstuffs, and that it will not continue. Europe is suffering for bread, and it is very certain that this country alone can be depended on to supply the demand. These are our convictions, produced from the examination of the accounts brought by the last steamer, and we give them for what they are worth—merely adding, that a large number of the passengers in the Cambria were agents from England, France, and the continent, who have arrived in our country with large means to purchase our breadstuffs.

FLOUR.—*Howard Street.*—Before the arrival of the Cambria, flour was firm at $6.25, which price dealers generally were unwilling to take, being disposed to hold off for the steamer's news. On Sunday it was announced through the telegraph that the news had arrived, and on Monday a synopsis of the advices was published which had the effect of unsettling the market and reducing prices about 50 c. per bbl.—There were sales during the afternoon, in lots, amounting to about 1300 bls. at $5,75 a $5,81¼. On Tuesday, sales were also made of lots, to the extent of 1000 bbls. at $5,75. The private letters brought by the Cambria, which had been detained beyond their regular time, came to hand on Wednesday morning, which caused holders to be more firm, their tenor not being considered so unfavorable as the first giving out of the news by telegraph, and sales were made during the day, of about 1000 bbls. in lots, at $5,87½, which price was freely offered on Thursday, but there were no sellers at less than $6, per barrel, and consequently no transactions took place. Holders are now firm in asking $6. Nearly every barrel of flour now receiving, is believed to have been sold before the arrival of the news. 30,000 bbls. were received during the last week.

*City Mills.*—The supply is very small. Holders are generally asking $6¼ and unwilling to take less

*Rye Flour.*—No sales. It is nominally worth $5.

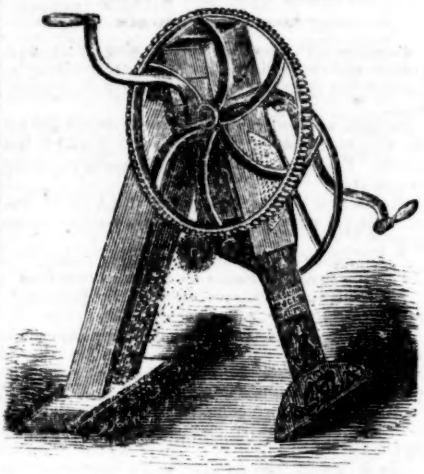
*Corn Meal.*—Since the foreign news holders have receded somewhat and now ask $4,75.

*Wheat.*—The supply of Wheat is small, receipts mostly by wagons and railroad. After the receipt of the Cambria's news, prices declined and sales of good to prime Maryland reds were made at 120 to 125 cts. Within a day or two past a slight advance has taken place, and we now quote good to prime at 122 to 128 cents. A sale of 1,200 bushels very prime was made on Thursday at 130cts. Ordinary to good is worth 120 to 122 cts. White Wheat for family flour 135 to 140 cts.

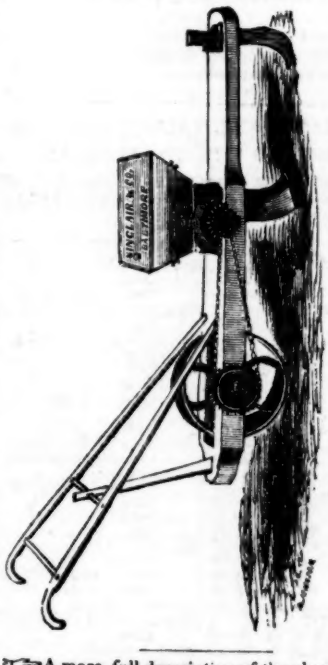
*Corn.*—The receipts of corn by railroad and wagons have been tolerably large for the season. Previous to the steamer's advices sales of white were making at 90 a 92cts. and of yellow at 93 to 95 cts. The account of a decline in England, had the effect of reducing prices. On Monday sales were made of white at 80 cts. and of yellow at 80 to 82cts. Prices have since slightly rallied, and we now quote white at 82 to 83 c. and yellow at 83 to 85 c.



## SINCLAIR & CO'S. DOUBLE ACTING CORN SHELLER.



The Sheller is a ne plus ultra, and invented this winter; price $18.



SINCLAIR & CO'S. DRILL MACHINE.
This Drill Machine, is our most approved for drilling Corn, Beets, Peas, &c.

☞A more full description of the above machines will be given hereafter. They are being manufactured and sold by R. SINCLAIR, Jr. & CO.
mh 1 Light near Pratt st.

### *PERUVIAN & ICHABOE GUANO.*

FARMERS wishing to apply this valuable manure can be furnished with a pure article at the lowest importation prices by addressing W. WHITELOCK,
Corner of Gay & High-streets, Baltimore.
Also, *Clover*, Timothy, and Orchard Seed. 3t* Mar. 1

---

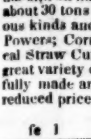
VALUABLE AGRICULTURAL WORKS.—American Farmers' Encyclopedia—Morrell's Shepherd—Allen's American Agriculture—Youatt on Cattle—Youatt on the Horse. "THE ARCHITECT," a valuable new work on Cottage Architecture and Landscape Gardening, 1st vol. complete, in 5 Nos. $2 50. Lindley's Guide to the Orchard, with additions, by Mr. Floy—Bridgman's Young Gardener's Assistant—Book of Cage Birds—and a great variety of other works.
SAMUEL SANDS,
m 1 122 Baltimore street.

---

### TO FARMERS AND PLANTERS.

The subscriber takes this opportunity to express his grateful acknowledgments to his friends and patrons and the public generally, for the liberal patronage they have bestowed upon his manufacturing establishment during the last twenty-six years, from which he is now desisous of retiring, and if he should succeed in doing so, the public will be duly notified where they can obtain castings from his various improved Plough Patterns which have probably been fitted up with more care at greater expense than similar patterns in this State. He has still on hand about 200 Ploughs of various patterns, and about 30 tons of Plough castings, Cultivators, Harrows of various kinds and sizes; Wheat Fans, Thrashing Machines; Horse Powers; Corn-Shellers, and about 50 of his superior Cylindrical Straw Cutters from 11 to 20 inches wide, together with a great variety of others. All the above named articles are faithfully made and of the best materials, and are offered at very reduced prices at wholesale and retail.
J. S. EASTMAN,
fe 1 No. 180 West Pratt street.

---



### NOTICE.

CLAIRMONT NURSERY,
*Near Baltimore, Md.*

We again take pleasure in notifying our various customers and the public, that the time has nearly arrived for transplanting Trees, &c., and consider our stock of fruit trees superior to what they have ever been before both in quality and in quantity, as we have had an opportuty of testing their correctness from our standard Trees which are extensively bearing.—We deem it unnecessary to enumerate the various kinds of fruit and ornamental Trees, Shrubbery, Roses, Green House plants, Flower roots, &c. &c., suffice it to say our Nursery and Seed Garden occupies about 100 acres of the Farm, and our determination is to give satisfaction if possible, both in price and quality—printed Catalogues, giving our prices, will be be sent gratis; where large quantities are wanted considerable discount will be made. Letters addressed to R. Sinclair, Jr. & Co., Light St., Baltimore, or the subscribers, Balto. Md. will meet with prompt attention.

Persons wishing to act as Agents will please let us hear from them. Oct 1 SINCLAIR & CORSE.

---

THE SUBSCRIBER takes pleasure in returning thanks to the many gentlemen who have favoured him with their MILL-WORK; also to the farmers and planters for their liberal support in the Machine line, and would respectfullyy inform them, that his endeavors to please will continue unremitting. He is prepared at all times to build any of the following kinds of MILLS. Overshot, Pitch Back, Breast, Undershot, Reacting, Steam, Wind, Tide, Horse-power, or Tread Mills; and having the best of workmen employed at pattern and machine making, he can at all times furnish the best articles at the lowest prices, such as Horsepowers, Pettigrew Shellers, Murray's Shellers, 4 kinds hand and power Shellers, portable Mills adapted to any power, Corn and Cob grinders, Straw, Hay and Fodder Cutters, Carry-log and Mill Screws; also manufactures Hoisting Machines, Hoisting Cranes, Pile Drivers, Turning Lathes and Steam Engines; and any kind of Machine, Model or Mill-work built to order. Any kind of Castings and Smith-work at the lowest prices. I warrant all Mills planned and erected by me to operate well. JAS. MURRAY,
Millwright, York near Light st. Baltimore.

Also for sale, Jas. Murray's patent separating Shellers, which shells and puts the corn in perfect order at the same time, for the mill or for shipping—Persons living near the city can bring with them one or two barrels of corn, and give the sheller a fair trial before purchasing.

He has also for sale, the following second hand Machinery: 2 pair 4 ft 6 in. French burr Millstones, with all the gearing; 1 pair 3 ft 6 in. French Burr Millstones, with all the gearing; and some Saw Mill work—the whole are good, and any or all of the above will be sold low. n 1

---

### PRUNING OF FRUIT TREES.

As from now, to the latter end of February is the proper time for the general pruning of Trees, Shrubs, &c., the subscriber would respectfully offer his services in that branch of his business and begs to assure those who may employ him of his capacity to render satisfaction. JOHN TUOMAY,
PRACTICAL GARDNER, corner of Hoffman & Garden sts. Baltimore.

☞Orders left at Saml. Feast & Son's Exotic Nursery, corner of Charles and Saratoga streets, or at the office of the American Farmer, will meet with prompt attention. Jan 1

---

*"Spade labour, the perfection of good husbandry."*

PULVERIZATION.

DECOMPOSITION.

THE "PREMIUM PLOUGH"—In Prouty & Mears' No. 5 1-2, "confessedly the best PLOUGH known in this country for beauty of work and pulverizing the soil," we have combined the most perfect swing as well as wheel Plough, connected also with the principles of self-sharpening and centre-draught, which with the facility of turning it into a Tandem 2, 4, or 3 horses abreast Plough in a minute of time, renders it the NE PLUS ULTRA of perfection. During the past season it received the first premium for the BEST PLOUGH, at Philadelphia; a first, second and third premium at New Castle county, Del.; the Imperial Medal of Russia, of massive gold, value $300; and at Prince George's society, Md. the highest testimony of approbation, in not permitting it to compete, having already received the first premium as "the *BEST PLOUGH* for general purposes." Their one-horse Plough No. 2 1-2, is strongly recommended for light soils and horticultural purposes, being built after the same model, self sharpening, and carrying a sod furrow 10 in wide with great ease and precision.

In addition to the above, the Premium list of the Prouty & Mears' Centre Draught Plough for the present season, is as follows, viz:

New Castle Co. Del., 6 premiums out of 8, including the first two premiums.
Concord, Mass., 5 premiums out of 8, furrows 10 in. deep.
Philadelphia, 1st premium for the best plough, of the trial.
Taunton, Mass, 5 premiums, including the three first premiums.
Newtown, Bucks Co. Pa., "the best Plough for pulverizing the soil and burying the stubble."

For sale at No. 35 LIGHT ST. Baltimore, MR. EZRA WHITMAN being appointed sole Agent for sales in Baltimore and vicinity. dec 1

---

The "Simon pure," and invincible WILEY PLOW still in the field—A. G. MOTT, at No. 38 ENSOR STREET, near the *Bel-Air Market*—Manufacturer and Vender of Implements of Husbandry, viz. *Plows, Harrows, Cultivators, Grain-Cradles, Wheat-Fans, Corn-Shellers, Straw-Cutters*, Endless chain *Horse Powers, Threshing Machines, &c. &c.*—through this medium, would apprize the agricultural community of the fact, that he is the only manufacturer in the "Monumental city" of the GENUINE WILEY PLOW (right and left hand) composed of the real "simon pure" and justly celebrated New York composition, chilled castings, the points of which, are warranted to stand the most rugged soil equal to steel, at a cost of about *two cents* per acre, for blacksmith's bill.—If you are for bargains, call, or send your orders, for he guarantees his implements good as the best, and cheap as the cheapest, *for cash*, and delivered in any part of the city free of charge.

---

JAVA FOWLS, $3.50 per pair; Turkey Fowls, $3.50 per pair; mixture of Turkey and Java, breeds, $3.50; Cocks of either breed, $1.75; Poland Fowls, $3.50.

A few pairs of the above for sale—appiy at this office. de. 1

---

BOMMER'S METHOD FOR MAKING MANURE—The subscriber has been appointed by Mr. Bommer, his agent for the Southern States, and will dispose of the Books, with the right to use them, for any sized farm, at $5 each. Address (post paid) m1 SAML. SANDS, office of "A. Farmer."

---

### The American Farmer.

The 2d volume of the new series of this journal commenced on the 1st of July, 1846—It is issued on the 1st of each month.

*Terms:*—Single copies $1—Six copies for $5—Thirteen copies for $10.—Thirty copies for $20.

Sample Nos. will be sent to any one desirous of aiding in the circulation of the "*Farmer*."

Address SAMUEL SANDS,
122 BALTIMORE STREET, BALTIMORE.

---

*Printing executed at this Office.*

## CONTENTS OF THE MARCH NO.